

JPRS 78560

21 July 1981

# USSR Report

AGRICULTURE

No. 1290

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21 July 1981

## USSR REPORT

## AGRICULTURE

No. 1290

## CONTENTS

## REGIONAL DEVELOPMENT

Shortcomings in Grain Elevator Construction in Belorussia Noted (G. Vasil'yev, Ya. Glezer; EKONOMICHESKAYA GAZETA, Jul 79).....	1
Problems in Grain Elevator Construction in Moldavia Discussed (P. Vorob'yev; EKONOMICHESKAYA GAZETA, Aug 80).....	5
Progress in Grain Elevator Construction in Ukraine Discussed (Yu. Kotov; EKONOMICHESKAYA GAZETA, Apr 79).....	7
Shortcomings in Grain Elevator Construction in Chernigov Lamented (V. Moshura; EKONOMICHESKAYA GAZETA, Aug 80).....	10
Problems in Grain Elevator Construction in Sumskaya Oblast Noted (N. Gubenkov; EKONOMICHESKAYA GAZETA, Jun 79).....	12
Briefs	
New Grain Elevator	14
Accelerated Construction in Kletsk	14
Improved Construction in Loshnitsa	14
Inefficient Construction in Kletsk	15
Inefficient Construction in Slutsk	15
Improved Construction in Slutsk	16
Elevator in Borovskiy Rayon	17
Grain Warehouse for Konotop	17
Konotop Construction in 1980	18
Inefficient Construction in Guty	18
Materials for Guty Elevator	18
Equipment for Belovodsk Elevator	19
Inefficiency at Zachepilovka Enterprise	19
Structures for Zachepilovka Enterprise	19

Defects in Novoaydar Elevator	20
Elimination of Elevator Defects	20
New Novoaydar Grain Elevator	20
Inefficiency at Dvurechansk Elevator	21
New Elevators in Ukraine	21
New Varvarovskiy Grain Elevator	21
Bogdanovtsy Grain Combine	22
Melitopol' Grain Elevator	22
Commissioning of Varvarovskiy Elevator	22
Black Sea Elevator Complex	22

#### AGRO-ECONOMICS AND ORGANIZATION

Complaints Aired on Private Plot Pasturage, Equipment (SEL'SKAYA GAZETA, 12 Jun 81).....	23
Lack of Private Pastures Help for Private Plots	
Activities of Interfarm Livestock Enterprises Analyzed (B. I. Pleshkov, A. I. Lutsenko; VESTNIK STATISTIKI, May 81)...	28
Problems of Profit Distribution in RSFSR Skotoprom Cooperation (G. T. Goygel; FINANSY SSSR, May 81).....	38
Importance of Improving Grain Products, Increasing Feed Grain (ZERNOVOYE KHOZYAYSTVO, Jun 81).....	47

#### AGRICULTURAL MACHINERY AND EQUIPMENT

All-Union Technical Service Conference (SEL'SKAYA ZHIZN', 13, 20 Jun 81).....	53
Agricultural Officials Participate Technical Progress, Problems Aired, by A. Torichko	
Machine System for Mechanization of Agriculture, Forestry (S. Stefanov; MEZHODUNARODNYY SEL'SKOKHOZYAYSTVENNYY ZHURNAL, No 3, 1981).....	56
Commentary on Need for Small Agricultural Machinery (D. Novoplyanskiy; PRAVDA, 4 May 81).....	65

#### TILLING AND CROPPING TECHNOLOGY

Measures for Raising Grain Production Level in RSFSR (A. Osadchuk; SEL'SKOYE KHOZYAYSTVO ROSSII, Apr 81).....	69
Herbicide Application to Grain, Feed Crops Prescribed (T. Golovnya, et al.; SEL'SKAYA ZHIZN', 7 May 81).....	77
Poor Preparation, Operation of Feed Procurement Equipment Stressed (SEL'SKAYA ZHIZN', 6 Jun 81).....	82
Poor Performance of Fertilizer Plants Scored (Ye. Leont' yeva; SOTSIALICHESKAYA INDUSTRIYA, 10 Jun 81).....	85



## REGIONAL DEVELOPMENT

### SHORTCOMINGS IN GRAIN ELEVATOR CONSTRUCTION IN BELORUSSIA NOTED

Moscow EKONOMICHESKAYA GAZETA in Russian No 31, Jul 79 p 19

[Article by G. Vasil'yev and Ya. Glezer, correspondents of EKONOMICHESKAYA GAZETA:  
"Elevators Must Be Put Into Operation on Schedule"]

[Text] New elevators of a total capacity of 183,000 tons are to be built in Belorussia this year, including 94,000 tons, in Minskaya Oblast.

How is the construction of procurement projects proceeding? What difficulties arise in the course of their construction? A business meeting organized by the Minskaya Oblast Committee of the Communist Party of Belorussia and EKONOMICHESKAYA GAZETA was devoted to this question. Notes from this meeting are published below.

#### In Debt to Procurement Organizations

It should be noted right away that elevator builders in Minskaya Oblast have begun this year as great debtors. Last year the Trust No 23 (N. Brat'ko, manager) of the Belorussian SSR Ministry of Industrial Construction did not put elevator capacities for 32,000 tons into operation in the city of Molodechno and the Belorussian Republic Production Repair and Construction Administration (F. Pastukhovich, chief) of the All-Union Soyuzelevatormel'remstroy Trust of the USSR Ministry of Procurement failed to put metal capacities for grain storage into operation in the city of Kletsk.

As Yu. Shchelkin, chief of the Minskaya Oblast Production Association of Grain Products noted in his speech, the main reason for the failure to put the Molodechno elevator into operation lies in the fact that from the very beginning of the construction of this project the managers of the Trust No 23 were not able to create conditions for highly productive labor. Approximately one-third of the necessary builders worked there and the fulfillment by every worker of the established assignment was hardly supervised.

This year the trust improved labor organization at the project and was able to put the elevator into operation in the second quarter. But little has changed in the construction of metal capacities for grain storage in Kletsk. As before, the construction schedule is not met periodically. Construction and installation work worth 75,000 rubles instead of 200,000 rubles according to the plan was performed at the project during the first half year.

Why is a key procurement project being built so slowly? Why instead of 1½ years assigned for the construction of metal capacities for 18,000 tons according to the standard they are being built for the fourth year?

This is what D. Shvets, chief engineer of the Republic Production Repair and Construction Administration, said:

"Having entrusted the construction of the Kletsk project to the administration, the management of the All-Union Soyuzelevatormel'remstroy Trust (Ya. Girovich, manager), in fact, did not specify which reinforced concrete article plant would provide builders with reinforced concrete structures. Therefore, for a long time they had an acute shortage of these necessary materials. Only not long ago was the administration attached to the plants of the Belorussian Ministry of Construction Materials Industry.

"The situation is also complicated by the fact that there is a high labor turnover at the construction of this elevator. This is due to the extremely unsatisfactory housing and domestic conditions of the project's builders. There are no dormitory facilities and workers have to live in small unsuitable railroad cars."

"Ivan Blames Peter..."

From what chief engineer D. Shvets said it appears that the Soyuzelevatormel'remstroy Trust is to blame for everything. But, in fact, is this so? Being in Moscow, we asked its manager Ya. Girovich about this.

He said that the situation with the delivery of reinforced concrete was really unsatisfactory and not only in the Belorussian Repair and Construction Administration, but in other administrations of the trust as well. The point is that the trust does not have its own plants for the production of reinforced concrete articles and, therefore, it comes to an arrangement about their deliveries for its organizations with other departments.

At the projects there is a shortage of dump trucks and other heavy machinery. Its allocation to the trust by the USSR Ministry of Procurement comprises only 30 percent of the submitted orders.

When we asked who, nevertheless, specifically supplied reinforced concrete for the Kletsk project, the manager was unable to give a precise answer. S. Bobylev, his deputy, came to his aid. After some time he specified that the Smorgon' Reinforced Concrete Article Plant of the Smorgon'silikatobeton Production Association (Grodenskaya Oblast) of the Belorussian SSR Ministry of Construction Materials Industry should supply reinforced concrete articles on the basis of a direct contract with the trust. As of April of the current year all the necessary reinforced concrete articles are at the project.

However, why did the materials fully arrive at the project only in April? After all, the metal capacities in Kletsk were start-up projects last year. The point is that the trust concluded the contract with the Smorgon' Plant only at the end of last year.

This confusion with suppliers of materials once again indicates that the management of the Soyuzelevatormel'remstroy Trust neglects matters at an important construction project and poorly supervises the course of the project's construction. All the participants in the meeting were unanimous in this evaluation.

However, the management of the Belorussian Republic Production Repair and Construction Administration bears a considerable part of the blame for the failure to put the project into operation. Who if not it should be concerned with a smooth course of construction, improvement in the skills of its workers, their normal production, housing and domestic conditions and personnel training!

Now, when the project has been supplied with all the necessary materials and equipment, the management of the administration should take urgent major measures to improve labor organization at the construction project with a view to putting the project into operation this year. The management of the Soyuzelevatormel'remstroy Trust and the client--the Minskaya Oblast Production Association of Grain Products--must help them in this. V. Chiclurin, head of the division of construction of the Minskaya Oblast Party Committee, discussed this with high-mindedness.

#### There Is Still No Equipment

In addition to the Kletsk project this year it is necessary to put into operation an elevator for 44,000 tons at the mixed feed plant at the Loshnitsa station. The builders of the Stroymekhanizatsiya Trust of the Belorussian SSR Ministry of Industrial Construction committed themselves to putting it into operation ahead of schedule. Is this realistic? It is. However, as A. Savchenko, manager of the Stroymekhanizatsiya Trust noted, the client must urgently ship the lacking equipment. It was supposed to be delivered during the first quarter. Meanwhile, the railroad car unloader arrived at the project only in May and the drier, at the end of June. To this day a separator and a number of roller supports have not been delivered and there is a partial shortage of cable products and other equipment. As a result, the subcontracting organization--the Promtekhmontazh Trust of the Belorussian Ministry of Installation and Special Construction Work--was unable to finish all installation work in June, as required according to the plan. As a consequence, sanitary engineering, electric installation, finishing and other operations and the adjustment and testing of equipment are delayed.

Low-quality equipment and construction materials arrive both at the Loshnitsa Elevator and at other projects. V. Lekarev, chief engineer of the Minskaya Oblast Production Association of Grain Products, and V. Baranov, manager of the Minsktekhmontazh Trust, discussed this. For example, the belt conveyers and cyclone unloaders supplied by the plants of the USSR Ministry of Procurement arrive incomplete and with considerable flaws.

A. Drapezo, director of the Loshnitsa Mixed Feed Plant, noted in his speech that precast reinforced concrete elements are manufactured by the Minsk Reinforced Concrete Article Plant No 1 and the Orsha Reinforced Concrete Structure Plant of the Belorussian Ministry of Industrial Construction with a deviation from the prescribed dimensions. As a result, recesses are formed during their assembly and, therefore, moisture penetrates into silos.

The insulation of the joints of precast silo components is considered one of the most labor intensive operations in the construction of elevators. At the same time, the mastic of the Kiev Chemical Article Plant now used for these purposes is nondurable and in time loses its protective properties. The types of mastics recommended by designers are not yet produced by the domestic industry.

As the business meeting showed, there are still many shortcomings and oversights in the construction of elevators in Minskaya Oblast, which greatly hampers the course of construction. The situation with the construction of metal capacities in Kletsk is especially difficult. Judging from everything, managers of contracting organizations must fundamentally change their attitude toward this important project and improve the work of their organizations.

It appears that, in turn, the Minskaya Oblast Production Association of Grain Products and the republic's Ministry of Procurement, as well as the USSR Ministry of Procurement, will efficiently observe their contractual obligations to contractors and give them practical help. This will make it possible to build elevators smoothly and to put them into operation on schedule and in a high-quality manner.

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CSO: 1824/321



## REGIONAL DEVELOPMENT

### PROBLEMS IN GRAIN ELEVATOR CONSTRUCTION IN MOLDAVIA DISCUSSED

Moscow EKONOMICHESKAYA GAZETA in Russian No 33, Aug 80 p 19

[Article by P. Vorob'yev, Moldavian SSR: "The PMK-75 Is Not in a Rush"]

[Text] Work on obtaining high-quality grain, which has developed widely on kolkhozes and sovkhozes, is the characteristic feature of this year's harvest campaign in Moldavia. Whereas last year the republic's farms sold 40,000 tons of wheat of strong and valuable varieties to the state, this year the task is to no less than triple or quadruple the sale of grain of such varieties as compared to last year. A solution of this important problem largely depends on procurement officials and on the organization of a prompt acceptance and processing of grain.

"This year," says Moldavian SSR Deputy Minister of Procurement Pavel Fedorovich Usenko, "our enterprises should accept from kolkhozes and sovkhozes more than 1 million tons of grain, of which wheat comprises about one-half. At present the total capacity of granaries in the system of the republic's Ministry of Procurement is 1.7 million tons. A number of elevators equipped with modern machinery of a total capacity of more than 460,000 tons, including big elevators of the latest design, such as the Bendery and Kaushany--100,000 tons each--and Chadyr-Lunga and Floreshty--85,000 tons each--and other elevators were built and put into operation during the 10th Five-Year Plan alone.

"Special attention was given to an increase in the capacities of grain drying facilities. This year they are capable of processing more than 4,300 tons of grain per hour. Weight and laboratory equipment was repaired and accepted with a good evaluation. All grain receiving enterprises were staffed with the necessary skilled personnel for all-around work on the acceptance and processing of grain.

"However, there were also flaws in our work," continues P. Usenko. "For example, a new elevator is being built at the Tiraspol' Grain Product Combine. According to the plan the construction administration of the All-Union Elevatorremstroy Trust (M. Mavrin, chief of the administration) should have put it into operation during the first half year. However, it has not been put into operation even now. There are many serious imperfections here. Upper galleries over capacities have not been installed, the installation of the receiving unit of the working tower has just begun, work on utility lines has not been completed and the organization of public services on the territory has not begun. Production technology during the performance of construction and installation work is violated. To a great extent these violations are due to the poor supervision on the part of the management of the Elevatorremstroy Trust.

"The construction of a mechanized flow line for grain processing at the Komrat Grain Product Combine is not carried out satisfactorily. This powerful line with two drying units will be capable of processing more than 60 tons of grain per hour. However, the mobile mechanized column-75 of the republic's Ministry of Construction, which was entrusted with its construction, is obviously not in a rush. Only one-half of the planned volume of construction and installation work amounting to 627,000 rubles was fulfilled.

"The projects under construction are extremely needed for procurement organizations. Moreover, they are needed now, when grain from farms is arriving at grain receiving centers, not at the end of the year. It is time that builders understand this."

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CSO: 1824/321



## REGIONAL DEVELOPMENT

### PROGRESS IN GRAIN ELEVATOR CONSTRUCTION IN UKRAINE DISCUSSED

Moscow EKONOMICHESKAYA GAZETA in Russian No 17, Apr 79 p 9

[Article by Yu. Kotov, Ukrainian SSR minister of rural construction: "Search for New Solutions"]

[Text] The contracting organizations of the Ukrainian SSR Ministry of Rural Construction have accumulated considerable experience in the construction of elevator projects. I will mention figures, which speak for themselves. The five-year plan envisaged the commissioning in 3 years of elevator projects, which can store 3.47 million tons of grain. In fact, capacities for 43,000 tons more were put into operation.

Last year builders worked smoothly. While the plan called for the commissioning of storage facilities for 942,000 tons, elevators for 978,000 tons were put into operation.

#### Concentration of Forces and Funds

We pay special attention to an improvement in the organization of building production. Clear-cut specialization of the ministry's trusts was carried out, which increased the efficiency of solution of many construction problems considerably and made it possible to deliver fully completed projects to the client and to pursue a unified technical policy.

The production base of construction has been strengthened significantly in the last 5 years. Powerful, new specialized enterprises for the production of elevator components have been established.

Qualitative changes have also occurred in elevator construction itself. The unit capacities of storage facilities have increased considerably. Now we are building mainly fully prefabricated elevators of a capacity of 150,000 to 200,000 tons. The construction of such big enterprises, as compared to elevators of a capacity of 25,000 to 50,000 tons, lowers the cost of ton-capacity by 15 to 20 percent. Savings are attained as a result of a reduction in the expenditures on utility lines and auxiliary and subsidiary structures. Material intensiveness and labor expenditures are also reduced. I shall cite two examples.

Last year the construction train No 4 of the Ukrelevatormel'stroy Trust put an elevator of a capacity of 143,000 tons into operation in Rakhnakh in Vinnitskaya Oblast. The state commission accepted five silo buildings, 27,000 tons each,

and a working tower. The overall brigades of Z. Volovich and V. Stropak, working on the basis of a contract, built these projects in 36 instead of 42 months according to the standards. For a comparison I shall state the following: Two brigades need 47 months for the construction of an elevator of a capacity of 43,000 tons with a unit capacity of silos amounting to 18,000 tons.

An elevator of a capacity of 160,000 tons is being assembled in Dolinskaya in Kirovogradskaya Oblast. For the first time in our country not only silo buildings, but a working tower as well, are built from prefabricated, prestressed rings with a diameter of 6 meters. The use of unified structures lowered the products list by 40 percent.

The level of ground water is high almost everywhere in the Ukraine. It is necessary to do complex work on building a deepened underground part of structures and devices for the acceptance of grain from motor and railroad transport facilities. Previously, malfunctions occurred there constantly and their elimination delayed the commissioning of projects. As a result of a rational arrangement of hoppers, the specialists of the Ukrelevatormel'stroy Trust were able to reduce the deepening by 1½ meters. On water towers and reservoirs brickwork and monolith were fully replaced with precast reinforced concrete.

Our ministry jointly with the Ministry of Procurement and planning organizations solved an important technical problem of blocking and consolidating subsidiary and auxiliary buildings at elevator and grain processing complexes. As a result, a reduction of 6 to 8 percent in the building area is attained and the length of utility lines is shortened by 20 to 30 percent.

Stable and efficient overall brigades have become the basic production subdivisions in the trusts of Glavelevatormel'stroy. They independently perform all types of construction and installation work. Many of them utilize more than 1 million rubles of capital investments annually. Almost one-half of the brigades operate by the method of brigade cost accounting.

The brigade of Hero of Socialist Labor Mikhail Vladimirovich Pavlenko became a true school for an exemplary organization of building production. He was the first in the republic to master the installation of an elevator from prefabricated structures in Zhashkov. His brigade constantly carries out work ahead of schedule and delivers projects early and with a good and excellent rating.

More than 200 advanced workers, who went through M. Pavlenko's school, are now working at elevator construction projects. One of his pupils--Vasilii Budlyanskiy--does not lag behind his teacher. For example, last year V. Budlyanskiy's overall brigade put two silo buildings into operation at the elevator in Belaya Tserkov' 6 months ahead of schedule.

Last year the personnel of the construction train No 7 of the Yuzhelevatorstroy Trust put an elevator of a capacity of 150,000 tons into operation in Kalinindorf in Khersonskaya Oblast. The unit capacity of silo buildings was increased by 6,000 tons. The height of elevator premises, as compared to the standard plan, was increased by 9.8 meters. Other parts of the plan were improved. By means of rational technical solutions six instead of eight silo buildings were built, the planned elevator capacity being retained. The length of construction was shortened by 6 months, as compared to the standard, and the expenditure of concrete and steel was reduced by 4 percent.

### According to the "Work Relay Race" Principle

Party organizations and economic managers take measures to make the experience of advanced overall brigades available to all so that there would be no single lagging brigade in the subdivisions of building production.

A responsible role in the solution of this problem is assigned to the permanent operational staff established under the Ukrainian SSR Ministry of Rural Construction. It has organized an efficient recording and control over the course of construction and installation work and receives daily information on what has been done at the projects. Operational control groups consisting of representatives of contracting and subcontracting organizations and of oblast administrations of grain products and of directors of enterprises under construction were organized at start-up complexes. The operational groups strictly see to it that the schedule of construction and installation work is met and ensure the supply of full sets of the necessary structures, materials and equipment for projects.

The formed system of construction management helped us last year to ensure an efficient and regular supply for projects. Even at those that were put into operation ahead of schedule the delivery of precast reinforced concrete and metal structures was completed in 3 months and of industrial equipment, 1 month before commissioning. The "work relay race" principle was implemented: Contracts for overall cooperation were concluded with all organizations participating in the construction of a project, including with plants that supply equipment. Having become partners in the competition for an accelerated commissioning of elevator capacities, enterprise collectives tried to observe contractual obligations.

Contracts for overall socialist competition have also been concluded with all partners this year. Builders took it upon themselves to put into operation elevator capacities for 100,000 tons in excess of the plan, as well as to ensure a prompt commissioning of the mixed feed plants envisaged by the assignment. On the basis of the experience of past years it was decided to put more than one-half of the elevator capacities under construction into operation by the time of the new harvest.

Elevator builders understand well the forthcoming complications and difficulties. Whereas during past years elevator construction accounted for 60 percent of the construction and installation work and the construction of mixed feed plants, for 30 percent, the structure has now changed fundamentally. The volumes of work on the projects of grain processing enterprises have increased sharply. It is not easy to convert reinforced concrete article plants to the output of structural materials of the new products list. The supply of metal structures and equipment will have to be reorganized. In addition to this, one would wish that clients--oblast administrations of grain products--do not repeat the errors of past years, when they did not provide construction projects with technical documents, equipment and cable and wire products on time.

We have insisted on the introduction of the Orel continuous planning method for a long time, but we do not receive support from the Union and republic ministries of procurement. In our opinion, efficient and thought-out planning for 2 years based on coordinated work programs of the client and the contractor could become a reliable basis for the attainment of even higher, new goals in the improvement of building production.

## REGIONAL DEVELOPMENT

### SHORTCOMINGS IN GRAIN ELEVATOR CONSTRUCTION IN CHERNIGOV LAMENTED

Moscow EKONOMICHESKAYA GAZETA in Russian No 32, Aug 80 p 19

[Article by V. Moshura, correspondent of DESNYANS'KA PRAVDA, Chernigovskaya Oblast:  
"Why Are Construction Projects Feverish?"]

[Text] This year workers in Chernigovskaya Oblast, along with high obligations for the production of potatoes and other agricultural crops, plan to obtain 1.96 million tons of grain. Of course, its fate will largely depend on the reliability of granaries. In what state are they and what is being done to strengthen their material and technical base?

At most existing grain receiving enterprises the repair of equipment is being completed, their processing capacity has been increased and the flow diagram is being improved.

In the current year the technical base of procurement organizations should also be strengthened considerably as a result of the construction of modern, new grain receiving enterprises. Plans have been made to put into operation elevators for 34,000 tons at the Mena station and for 43,000 tons in Chernigov. Unfortunately, the situation at these projects cannot but cause an alarm.

For example, the elevator at the Mena station was supposed to be put into operation in the second quarter, but it has not been commissioned to this day. True, the project has a high construction readiness. The equipment was installed there. However, work on civic improvements on the territory has not been done. As long as this is not done, the state commission will not put the project into operation.

The fact that the construction train No 11 of the Ukrelevatormel'stroy Trust was established not long ago also affected the delay in the commissioning of this elevator. Its collective has not yet been fully provided with experienced staff. Therefore, malfunctions in work are still frequent and labor organization is also far from perfect. Who if not the management of the Ukrelevatormel'stroy Trust should help its new contracting organization to stand on its own feet and to see to it that it is provided with the necessary materials!

The situation with the construction of the elevator in Chernigov is even worse. True, according to the plan it should be put into operation in the fourth quarter. However, this does not at all justify the inefficient organization of the builders' work at the project.



Sometimes concrete and sometimes brick is not delivered there. Such disruptions are part of the practice. The construction train No 11 hardly has its own transport facilities. Therefore, it has to ask for vehicles in other organizations. There is a shortage of welding apparatus, without which a construction project cannot do, and of tools. To make a simple bolt is a problem and to cut reinforcements and sheet iron and to plane boards, also. An impression is created that the Ukr-elevatormel'stroy Trust and the Ukrainian SSR Ministry of Rural Construction, establishing a new organization, forgot to provide the conditions necessary for its normal operation.

There are also other shortcomings. The unsatisfactory quality of technical documents prepared by the Khar'kov Promzernoprojekt Institute is reflected in the low rates of elevator construction in Chernigov. Many structural components have been left out and now it is difficult to install them. Builders eliminate the errors of designers, but this requires additional time and money.

If the situation is not rectified urgently, there will be rush work and a blitz at the Chernigov elevator in the very near future. The Ukrainian SSR Ministry of Rural Construction and the Ukr-elevatormel'stroy Trust should take urgent measures to provide the construction project with everything that is necessary.

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CSO: 1824/322

## REGIONAL DEVELOPMENT

### PROBLEMS IN GRAIN ELEVATOR CONSTRUCTION IN SUMSKAYA OBLAST NOTED

Moscow EKONOMICHESKAYA GAZETA in Russian No 23, Jun 79 p 19

[Article by N. Gubnikov, Sumy: "In the Position of Stepchildren"]

[Text] The Ukrelevatormel'stroy Trust is supposed to put a grain product elevator for 78,700 tons of grain into operation at the Belovodak Grain Product Combine in the third quarter of this year and capacities of the mixed feed plant for 9,200 tons, in the fourth quarter. However, only 8 out of the 47 elevator projects have 100-percent construction readiness. The construction of some projects, in particular of the water pressure pumping station, has not yet begun. The situation at the mixed feed plant is even worse.

To what is such a situation at the start-up construction project due?

"To the incorrect position of the trust management," answers A. Piyashechnik, chief engineer of the oblast administration of grain products. "From the very beginning of the construction of these two important projects (1975) serious miscalculations were made. The trust did not concern itself with the establishment of a production base and the provision of housing for builders."

Last year the construction of these projects was carried out by another collective, that is, PDSP-5. However, the trust managers also continue to treat it as a step-child. It is not surprising that last year's plan was disrupted again.

A joint order by Ukrainian SSR Minister of Rural Construction Yu. Kotov and Ukrainian SSR Minister of Procurement I. Shmatol'yan was issued at the beginning of this year. According to it Summel'stroy, Tsentrssel'spetemontash, Ukraovkhorospetastroy, Kiyevsel'spetemontash and other trusts should join in helping the PDSP-5 collective. Unfortunately, builders from these trusts have not yet appeared at the projects. Although the Ukrelevatormel'stroy Trust (V. Sobolev, manager) slightly increased the number of workers in the PDSP-5, their number is still insufficient. Moreover, at the project there is an acute shortage of such building materials as cement, rubble and bitumen. Therefore, the plan for the first quarter was fulfilled only 66 percent. The situation has not improved even now.

The organization of deliveries of equipment to the construction project also needs to be improved considerably. To this day the Main Administration of Supply of Equipment in Full Sets of the Ukrainian SSR Ministry of Procurement has not even



made allocations for a large number of push-button stations, lighting fixtures, hermetically sealed switches, relays of various brands, two complete condenser units and more than 4 km of installation copper wire. Nor were many projects of the mixed feed plant provided with allocations.

The Biysk Prodmash Machine Building Plant (Altayukiy Kray) supplied an incomplete grain drier for the project. A year already passed, but to this day the lacking equipment has not been received from the enterprise.

An accelerated construction of elevator capacities in Sumskaya Oblast is extremely necessary, because the oblast's procurement organizations have a great need for them. Owing to the shortage of elevators such rayons as Nedrigaylovskiy and Lipovodolinskiy are forced to transport grain to remote grain receiving centers, which leads to great losses of time and money.

The PDSP-5 collective, especially the brigades of V. Zinchuk, N. Stryuk and I. Isdorich working by the contract method, is fighting to put the elevator into operation by the beginning of the harvest. However, builders need help and it must be given promptly.

11,439  
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## REGIONAL DEVELOPMENT

### BRIEFS

**NEW GRAIN ELEVATOR--Kishinev--**A new elevator began receiving grain in Yedinetskiy Rayon in Moldavia yesterday. The storage facility of a capacity of 62,000 tons was placed on the territory of the grain product combine. More than 1,300 trucks participate in grain transportation on the republic's roads. They operate according to hourly schedules developed by means of computers. Every day about 20,000 tons of grain arrive at the enterprises of the Ministry of Procurement. They accept the harvest from heavy-freight trucks and motor vehicle trains. Warehouses for the storage of strong wheat have been allocated everywhere. The first batches of grain with an increased gluten content arrived at the Tiraspol' Grain Product Combine from farms in Slobodzeyanskiy Rayon. [Text] [Moscow TRUD in Russian 18 Jul 79 p 1] 11,439

**ACCELERATED CONSTRUCTION IN KLETSK--**USSR Deputy Minister of Procurement K. Kuznetsov responds to the article "Elevators Must Be Put Into Operation on Schedule" (No 31 of this weekly): The article under this title expressed valid critical remarks about the Soyuzelevatormel'remstroy Trust of the USSR Ministry of Procurement and the Belorussian Production Repair and Construction Administration of this trust, which allowed serious shortcomings and oversights in elevator construction in Kletsk in Minskaya Oblast, thus delaying its commissioning for a long time. At the request of the USSR Ministry of Procurement the Soyuzelevatormel'remstroy Trust took measures to provide the construction project with the necessary materials and equipment and to reinforce it with workers. As a result, the rates of work on the construction project increased. The plan for construction and installation work at this project established for 1979 will be fulfilled. It was suggested that the trust keep the construction project under special supervision. The equipment that arrived at the elevator in Loshnitsa late, which was also discussed in the article, was assembled. The elevator was put into operation. The USSR Ministry of Procurement takes measures to further strengthen and expand the production base of its construction organizations and industrial enterprises and to increase their responsibility for the fulfillment of plans and a prompt provision of projects with high-grade industrial equipment. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 49, Dec 79 p 19] 11,439

**IMPROVED CONSTRUCTION IN LOSHNITSA--**Belorussian SSR Deputy Minister of Industrial Construction A. Trusov responds to the article "Elevators Must Be Put Into Operation on Schedule" (No 31 of this weekly): In particular, the indicated article discussed the shortcomings in the construction of procurement projects in Molo-dechno and Loshnitsa. This article was discussed in the Belorussian SSR Ministry

of Industrial Construction. The criticism against contracting organizations was considered correct. Measures were taken to improve labor organization at the procurement projects under construction and to provide them with all the necessary materials. The realization of the adopted measures made it possible to put into operation elevator capacities for 32,000 tons and a grain drier of a capacity of 50 tons per hour of the Molodechno Flour Milling Combine and capacities for 44,000 tons and a grain drier for 50 tons per hour of the mixed feed plant in Loshnitsa in Minskaya Oblast on the dates established by the plant. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 52, Dec 79 p 19] 11,439

**INEFFICIENT CONSTRUCTION IN KLETSK--Minskaya Oblast--**It is not the first year that strife surrounds the construction of a metal granary at the Kletsk Mixed Feed Plant. It was a start-up project as long ago as 1978. So far the Belorussian Production Repair and Construction Administration (D. Shvets, chief) of the Soyuzelevatormel'remstroy Trust of the USSR Ministry of Procurement has not put this granary into operation. The leaders of the Kletskiy Rayon Committee of the Communist Party of Belorussia, troubled by such an alarming situation, at the end of 1978 sent a letter to the USSR Ministry of Procurement, in which they requested that urgent measures be taken to accelerate the construction of the project. An answer was received from USSR Deputy Minister of Procurement K. Kumetsov, in which he reported that a start-up complex was developed with due regard for the result of work in 1978, which determined the volume of construction and installation work for 1979. The Soyuzelevatormel'remstroy Trust and the Belorussian SSR Ministry of Procurement were instructed to jointly develop measures and to take the necessary steps to ensure the commissioning of this project. Next it was stated that an executive of the trust would be sent to the construction project in the very near future. However, 1979 passed, the first half year of the current year ended and the situation remains unchanged. Out of the measures to accelerate construction perhaps the sending of "executives" was the only promise that the ministry fulfilled. They came and in considerable numbers. But construction is carried out inefficiently as before. The general contractor--the Belorussian Production Repair and Construction Administration--failed to meet all the scheduled dates for the construction of metal granaries. The standard period for the project's construction is 14 months, but it is being built for more than 4 years. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 28, Jul 80 p 19] 11,439

**INEFFICIENT CONSTRUCTION IN SLUTSK--Slutsk, Minskaya Oblast--**The Slutsk Grain Product Combine has serious difficulties in the organization of the acceptance and storage of grain. This is connected mainly with a shortage of warehouse capacities. As A. Makarevich, director of the enterprise, noted, a disproportion between the capacity of production shops and the capacities for raw materials and finished products was formed at the combine. This disrupts the labor regime and leads to unnecessary railroad transport operations and to grain losses. That is why there was such joy in Slutsk when the USSR Ministry of Procurement adopted a decision to build a metal granary of a capacity of 5,100 tons at the combine. According to the plan it should have been commissioned at the beginning of the mass arrival of grain of this year's harvest. Unfortunately, it must be stated that builders did not meet the schedules for the commissioning of the granary in Slutsk. "We promptly handed over the planning estimates to the contractor--the Belorussian Production Repair and Construction Administration of the Soyuzelevatormel'remstroy Trust of the USSR Ministry of Procurement (D. Shvets, chief)--and delivered the

equipment," said V. Alekhin, the combine's chief engineer. "Nothing prevented the builders from meeting the standard schedules. The unsatisfactory organization of labor at the construction project and the systematic shortage of people and mechanisms led to the failure to meet them." The managers of the Soyuzelevatormel'-remstroy Trust also deserve a serious rebuke. They do not manifest proper concern for the most rapid commissioning of the granary and give insufficient practical help to the subordinate administration. [Text] /Moscow EKONOMICHESKAYA GAZETA in Russian No 38, Sep 80 p 1/ 11,439

IMPROVED CONSTRUCTION IN SLUTSK--USSR Deputy Minister of Procurement K. Kuznetsov responds to the report "Construction of Granaries Must Be Accelerated" (EKONOMICHESKAYA GAZETA No 38 of last year): The note on the shortcomings in the organization of the construction of metal silos of the Slutsk elevator in Minskaya Oblast was discussed in the USSR Ministry of Procurement and the Moscow Trust of the All-Union Soyuzelevatormel'-remstroy Association. Jointly with the Belorussian SSR Ministry of Procurement a number of measures to accelerate the work on enterprise construction were adopted. An additional number of workers, construction equipment and motor transport facilities were assigned to the project. Measures ensuring the commissioning of granaries were developed. Supervision was established over the construction of the indicated project. [Text] /Moscow EKONOMICHESKAYA GAZETA in Russian No 3, Jan 81 p 19/ 11,439

CSO: 1824/321

## REGIONAL DEVELOPMENT

### BRIEFS

**ELEVATOR IN BOROVSKIY RAYON--Khar'kovskaya Oblast--**The Borovskiy elevator is comparatively small. It is designed for the storage of 22,000 tons of grain. In fact, however, much more has already been accepted. Furthermore, sunflowers and corn arrive there. Thus, part of the valuable produce must be stored in bales without proper protection. Of course, this does not ensure reliable storage and leads to a deterioration in the quality of grain and to losses. The expenditures on the purchase of tarpaulin alone total more than 10,000 rubles annually. Moreover, the labor expenditures on the transfer of grain to warehouses, as they are vacated, are high. It is impossible to implement any measures on the care of grain, which its storage technology requires. "The leadership of Borovskiy Rayon," says N. Svyatenko, director of the elevator, "often raised the question of construction of a second elevator in Borovoy before the oblast administration of grain products (G. Pinegin, chief). A plan for the construction of a granary of a capacity of 32,000 tons was even developed. It was approved by the Ukrainian SSR Ministry of Procurement in 1974. So far, however, the construction of the granary has not begun. Now the technical solutions have become partially obsolete and the plan has been transferred to the planning and design group of the oblast administration of grain products for revision. We ask that this work be done more quickly. We have another request. The new elevator is to be built on the territory of the existing elevator. We consider this inadvisable. Construction work will cause great interruptions in the work on the acceptance and storage of grain. In our opinion, it is more sensible to build the elevator on the vacant area nearby." It seems to us that there is a justification for this. The construction of the new elevator will not only cause interruptions in the operation of the existing elevator, but will require the demolition of some fully suitable warehouses. This also represents considerable losses, which must be taken into consideration. [Text]

[Moscow EKONOMICHESKAYA GAZETA in Russian No 3, Jan 79 p 19] 11,439

**GRAIN WAREHOUSE FOR KONOTOP--Konotop, Sumskaya Oblast--**Wheat flour is delivered to our Konotop Grain Product Combine from the center. It arrives in railroad cars to the Virovka station, bypassing Konotop. It would be simpler and more profitable to deliver it immediately to the grain combine. However, this requires a special warehouse. The annual expenditures on the transportation of flour from the Virovka station (8 km from Konotop) exceed 20,000 rubles. A unit for a bulk distribution of rye flour was put into operation at the combine in 1977. The flour vans that come to us for this flour from the cities of Sumy, Romny and Trostyanets could bring first- and second-grade wheat flour necessary for the combine. However, as a result of the lack of capacities for bulk storage of this flour trucks go empty to Konotop. We often talked both to the Ukrainian SSR Ministry of



Food Industry and to the Sumy Association of the Baking Industry about the need for the construction of a warehouse at the combine. Unfortunately, however, its construction has not begun to this day. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 7, Feb 79 p 18] 11,439

KONOTOP CONSTRUCTION IN 1980--The report "There Should Be a Warehouse..." (No 7 of this weekly) discussed the acute need for the construction of a warehouse capacity at the Konotop Grain Product Combine. This report was discussed in the Ukrainian Industrial Association of the Baking Industry. In 1978, owing to limited capital investments, it was not possible to begin the construction of this warehouse. For a positive solution of the question raised in the report in 1979 the Kiev Planning-Design Technological Institute of the Ukrainian SSR Ministry of Food Industry will prepare planning estimates for the reconstruction of the silo-sifting department and the construction of a warehouse for bulk storage of flour with auxiliary services. This warehouse is to be built in 1980. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 12, Mar 79 p 19] 11,439

INEFFICIENT CONSTRUCTION IN GUTY--Bogodukhovskiy Rayon, Khar'kovskaya Oblast--Last year the collective of the construction train No 1 (L. Trinozhenko, chief) of the Ukrelevatormel'stroy Trust and its subcontractor--the Dnepropetrovsk Special Mobile Mechanized Column-546 (Yu. Lushnikov, chief)--worked well on the construction of the Guty elevator, one of the largest in the Ukraine. Not only the construction and installation work envisaged by the plan for the first stage (for 77,300 tons) was completed, but one-half of the work of the second stage (36,000 out of 72,000 tons), whose delivery date is the third quarter of the current year, was performed. It seemed that the situation would be even better in the new year. The created construction start made it possible to carry out work at high rates from the first days. Unfortunately, this did not happen. The managers of the general contracting organization became complacent. As a result, labor organization deteriorated and discipline weakened. A lag behind the planned rates of work was the consequence. The failure to meet the schedule for the deliveries of reinforced concrete structures, especially volume components for the construction of silo buildings, also has a negative effect on the course of elevator construction. Two more buildings must be put into operation. But there are not enough components even for one. The Yasinovatskiy Reinforced Concrete Article Plant lets us down very much. A normal operation of the elevator will largely depend on a prompt performance of work on engineering networks at the interkolkhoz mixed feed plant under construction nearby (the mobile mechanized column No 36 of Khar'kovskiy mel'stroy is the general contractor [B. Kopeychenko, head of the column]). However, this work has not been done to this day. The Ukrainian SSR Ministry of Rural Construction must take every measure to accelerate the construction of the Guty elevator. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 27, Jul 79 p 19] 11,439

MATERIALS FOR GUTY ELEVATOR--V. Prokopenko, chief of a main administration of the Ukrainian SSR Ministry of Rural Construction, responds to the report "To What Complacency Leads" (No 27 of EKONOMICHESKAYA GAZETA): The criticism against the organizations of the republic's Ministry of Rural Construction, which built the elevator in Guty, Khar'kovskaya Oblast, at slow rates, expressed in the report was considered correct. The Ukrainian SSR Ministry of Rural Construction took measures to outfit the project with the necessary materials and structures. At present work at the project, as well as the construction of the water pipe at the interkolkhoz mixed feed plant being built, to which the elevator's networks are connected, is at the stage of completion. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 47, Nov 79 p 19] 11,439



EQUIPMENT FOR BELOVODSK ELEVATOR--Ukrainian SSR Deputy Minister of Procurement N. Kurovskiy responds to the report "In the Position of Stepchildren" (No 23 of the weekly): The report "In the Position of Stepchildren" discussed the shortage of some types of electric equipment and copper installation wires at the start-up Belovodsk elevator in Sumskaya Oblast. The lag in the supply of these materials for the project is due to the fact that during the first quarter individual supplier plants did not fulfill their contractual obligations and did not deliver some of the articles envisaged by planning documents. At present, as a result of the adopted measures, all the lacking equipment arrived at the construction project and was transferred for installation. This makes it possible to systematically carry out construction and installation work at the project. Last year the Biyak Prodmash Plant delivered an incomplete grain drier, in which nine furnace sections were missing, to the project. Our repeated requests to send the missing accessories were ignored. In connection with this the Ukrainian Ministry of Procurement earnestly asks the Ministry of Machine Building for Light and Food Industry and Household Appliances to influence the subordinate Biyak Prodmash Plant to more rapidly complete the outfitting of the grain drier. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 36, Sep 79 p 127 11,439]

INEFFICIENCY AT ZACHEPILOVKA ENTERPRISE--Khar'kovskaya Oblast--The capacity of the Zachepilovka Grain Receiving Enterprise is to be increased 1.5-fold. According to the plan new metal capacities for grain storage should be put into operation in the fourth quarter of this year. However, the general contractor--the Kirovograd Special Mobile Mechanized Column (V. Podpovednyy, chief)--carries out construction and installation work at extremely low rates and periodically does not fulfill its plans. Meanwhile, there are sufficient materials and manpower at the project. What hampers a successful plan fulfillment? "The unsatisfactory organization of work," answers V. Shimel', chief of the division of capital construction of the oblast administration of grain products. "I shall cite the following case. Workers began to dig a foundation pit in January. Not having finished the job, they abandoned it. And so several times. As a result, 5 months were spent on digging the foundation pit, whereas 1 month was sufficient." The collective of the column is young. It was established only last year. This made it incumbent upon the managers of the Moscow Elevatorremstroy Trust, to which the Kirovograd Special Mobile Mechanized Column is subordinate, to be especially attentive to its work. However, this was not done. The trust was late in providing the column with a crane truck and in ordering reinforced concrete articles from the industry. The help of the administration of grain products was needed. Now there are already articles on the spot. There is every possibility to accelerate construction and installation work. First of all, it is necessary to speed up the establishment of the foundation and the installation of transporting mechanisms. The trust managers should take every measure to unconditionally put the capacities into operation before the end of the year. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 29, Jul 80 p 127 11,439]

STRUCTURES FOR ZACHEPILOVKA ENTERPRISE--I. Krichigin, acting manager of the Elevatorremstroy Trust of the USSR Ministry of Procurement, responds to the report "Prolonged Lag" (EKONOMICHESKAYA GAZETA, No 29): There were cases of unsatisfactory work organization in the construction of metal granaries at the Zachepilovka Grain Receiving Enterprise in Khar'kovskaya Oblast. This was due to the fact that the construction of the project was entrusted to a newly organized special mobile

mechanized column located in the city of Kirovograd. The process of providing the special mobile mechanized column with managers and engineering and technical personnel, as well as with the necessary machines and mechanisms, occurred (and still continues to occur) during the period of inclusion of the project in the plan. At present the trust takes measures to strengthen this organization. The construction project has been provided with basic metal structures--roll billets and roofing. The trust supervises the delivery in the current quarter of other structures from the Minsk Experimental Machine Plant of the All-Union Soyuzelevators' Association. For an efficient solution of all the problems arising in the process of performance of work the chief engineer of the Kirovograd Special Mobile Mechanized Column was assigned to the construction project. /Text/ /Moscow EKONOMICHESKAYA GAZETA in Russian No 36, Sep 80 p 18/ 11,439

DEFECTS IN NOVOAYDAR ELEVATOR--Voroshilovgrad--The builders of the Voroshilovgradsel'stroy Trust delivered the third stage of the Novoaydar elevator of a capacity of 127,000 tons, as they promised, on the eve of the harvest. However, the first hours of work on the acceptance of the new harvest disclosed numerous imperfections. They can be noted immediately, at the very beginning of the grain flow. Grain spills in all the three hoppers accepting grain from motor vehicles. Every day four or five people are forced to pick up this scattered grain. Nor have grain leaks been eliminated inside the work building. As a result, capacities for 15,000 tons have not been utilized to this day. The elevator workers pinned great hopes on automatic equipment. However, its adjustment has not been completed. Work must be done under manual conditions. There are many difficulties with the acceptance of grain by railroad. The weighbridge for weighing vans often gets out of order. Builders are again to blame for this. They did not put access roads into operation. The workers of the Novoaydar elevator are now working with great intensity. Every day more than 2,000 tons of grain arrive there by motor transport facilities and 1,000 tons, by railroad. "However, the trust, despite our repeated demands, does not want to eliminate its imperfections," complains V. Valuykiy, deputy director of the elevator. "Even the construction refuse has not been removed from the territory thus far." An alarming situation has been created. The Voroshilovgradsel'stroy Trust (R. Khakinov, manager) must eliminate the disturbances in the operation of the new elevator in the shortest time. /Text/ /Moscow EKONOMICHESKAYA GAZETA in Russian No 36, Sep 80 p 19/ 11,439

ELIMINATION OF ELEVATOR DEFECTS--Ukrainian SSR Deputy Minister of Procurement N. Kurovskiy responds to the report "The Elevator Was Commissioned, But..." (EKONOMICHESKAYA GAZETA No 36): The republic's Ministry of Procurement examined the critical report under this title, which discussed the imperfections at the Novoaydar elevator in Voroshilovgradskaya Oblast. The measures to eliminate them were discussed jointly with the Ukrainian SSR Ministry of Rural Construction. The Voroshilovgradsel'stroy Trust and the Voroshilovgradskaya Oblast Administration of Grain Products were instructed to complete all work and to eliminate the defects existing at the Novoaydar elevator and to ensure a normal activity of the enterprise. The performance of work was placed under supervision by both ministries. /Text/ /Moscow EKONOMICHESKAYA GAZETA in Russian No 45, Oct 80 p 18/ 11,439

NEW NOVOAYDAR GRAIN ELEVATOR--The Novoaydar elevator, which was put into operation after its expansion, accepted the grain of the new harvest. The five wings of this "house" for grain can hold 143,000 tons. All the industrial processes for

the acceptance, storage and processing of grain are fully mechanized and automated. Grain can be accepted both from motor transport facilities and from railroad cars. For grain drying a drier of a productivity of 50 tons per hour was built. The Novoyaydar skyscraper was built by the builders of the Voroshilovgradsel'stroy Trust. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 40, Oct 80 p 17] 11,439

INEFFICIENCY AT DVURECHANSK ELEVATOR--Dvurechanskiy Rayon, Khar'kovskaya Oblast--A silo building of a capacity of 17,400 tons is to be put into operation at the Dvurechansk elevator in the current quarter. However, the general contractor--the permanent construction train No 1 (L. Trinozhenko, train chief) of the Ukrelevator-mel'stroy Trust--and the contracting organization--the Khar'kov Construction and Installation Administration (N. Malyy, chief) of the Spetselevatormel'montazh Trust of the Ukrainian SSR Ministry of Procurement--obviously are not in a rush. They did not fulfill the plan for construction and installation work in 4 months. The project has not been provided with a sufficient number of builders and installation men. Only 50 instead of 80 to 90 builders work and the number of installation men is even smaller--only 12, whereas no less than 40 are needed. Such an attitude of the managers of general contracting and subcontracting organizations toward the start-up project is disturbing. After all, the commissioning of the building is timed with the beginning of the harvest. The procurement organizations of Dvurechanskiy Rayon pin great hopes on builders. Meanwhile, the installation of car elevators has not yet begun at the project and the installation of a grain drying unit has begun only recently. Work on the installation of an above-silo gallery of the building has not been completed and this makes it impossible to install a conveyor above the silo. To this day the Khar'kovskaya Oblast Administration of Grain Products (G. Penigin, chief) has not fully supplied industrial equipment to the construction project. Although at present this delay does not hamper the course of construction, the shipment of the lacking equipment must be accelerated for the simple reason that, in fact, it is time to put the silo building into operation. How long does it take to get started? [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 20, May 80 p 18] 11,439

NEW ELEVATORS IN UKRAINE--Kiev--Two new big elevators in the Ukraine--in the settlement of Oktyabr'skoye in the Crimea and at the Novyy Aydar station in Voroshilovgradskaya Oblast--accepted the grain of the 1979 harvest simultaneously. Overall engineering production preparation based on the principle of concentration of labor and material-technical resources at start-up projects ensures the regularity of performance of construction work. For example, an interesting innovation was introduced during the construction of the elevator in Khersonskaya Oblast. The height of buildings was increased by almost 10 meters, as compared to standard buildings, there for the first time. This made it possible, not lowering the total capacity, to build not eight, as usually, buildings, but only six. The expenditure of steel and concrete was reduced and 300,000 rubles were saved. [Text] [Moscow IZVESTIYA in Russian 5 Jul 79 p 17] 11,439

NEW VARVAROVSKIY GRAIN ELEVATOR--Nikolayev, 16 Feb--Another tall house appeared at the outskirts of the oblast center over the Southern Bug. This is the new Varvarovskiy elevator. It will accept the first 33,000 tons of grain from kolkhozes and sovkhozes in the Bug area this summer--1 year ahead of schedule. The personnel of the mobile construction train No 8 of the Yuzhelevatorstroy Trust works successfully on the completion of the construction of the new granary. [Text] [Moscow RABOCHAYA GAZETA in Russian 17 Feb 79 p 17] 11,439



BOGDANOVTSY GRAIN COMBINE--Khmel'nitskiy--One of the largest industrial complexes for the acceptance and processing of grain in the republic began to operate at the Bogdanovtsy station near the oblast center. The single grain product combine includes an elevator of a capacity of 100,000 tons and a mixed feed plant of a capacity of 500 tons of output per day. With the commissioning of the Bogdanovtsy Combine the problem of establishment of reliable storage facilities for grain was solved in the oblast. Automatic equipment keeps track of the acceptance of grain and bringing it up to high quality requirements. [Text] [Moscow PRAVDA UKRAINY in Russian 11 Jul 79 p 1] 11,439

MELITOPOL' GRAIN ELEVATOR--The Melitopol' elevator of a capacity of 100,000 tons was put into operation. This big enterprise equipped according to the last word in science is fully prepared for the acceptance of the first grain yield in its "biography." This year Zaporozh'ye farmers plan to produce 3.3 million tons of grain and to sell 1.3 million, including 365,000 tons of strong and valuable wheat, to the state. Right now a great deal is being done for a reliable storage of the harvest. Procurement organizations prepared additional capacities for 200,000 tons. At the same time, existing elevators are being repaired. [Text] [Kiev PRAVDA UKRAINY in Russian 11 May 80 p 2] 11,439

COMMISSIONING OF VARVAROVSKIY ELEVATOR--The Varvarovskiy elevator of a capacity of 33,000 tons was put into operation 1/4 year ahead of schedule. Every day this highly mechanized storage facility can accept up to 35 railroad cars with grain. Located on the right bank of the Southern Bug liman, the elevator has a deep water wharf designed for mooring vessels of the "river-sea" type. [Text] [Minsk SEL'SKAYA GAZETA in Russian 5 Jan 80 p 1] 11,439

BLACK SEA ELEVATOR COMPLEX--Odessa--An elevator complex holding more than 150,000 tons of grain has been fully prepared for the acceptance of the new harvest in the largest grain zone of the Black Sea area--the Sarata zone. Yesterday adjusters delivered the last units of flow lines--drying chambers and unloaders for the Kamaz motor vehicles. This year the oblast's grain receiving enterprises will accept almost 2 million tons of grain. [Text] [Moscow GUDOK in Russian 13 Jun 80 p 1] 11,439

CSO: 1824/ 322

COMPLAINTS AIRED ON PRIVATE PLOT PASTURAGE, EQUIPMENT

Lack of Private Pastures

Minsk SEL'SKAYA GAZETA in Russian 12 Jun 81 p 4

[Readers' letters and comments on them: "Where Should a Cow Graze?"

[Text] To be able to count is always good. This truth is correct, leading to income. However, understood unequivocally, only as a kopeck calculation, it becomes its reverse, that is, it leads to losses, including such that cannot be counted in rubles. For example, how to measure the anxiety and indignation of the residents of the village of Slavkovichi in Gluskiy Rayon, who every spring rack their brains over how to drive the herd of private cows to the pasture and back?

"All of us sell milk to the state. We are prepared to fence off a cattle track ourselves, just so we don't have to drive a herd of 200 cows in a roundabout way, through the settlement. However, M. Lesun, chairman of the kolkhoz imeni Chapayev, and the rural soviet do not pay attention to us and ignore the government decree on assistance to private farms," S. Marus, V. Reyzman and A. Tarkovets—a total of 24 signatures—write to the editors.

What prevents farm managers and the rural soviet from meeting the workers halfway? A trivial calculation. After all, about 2 hectares of land must be allocated for a herd track. It is simpler and cheaper to leave everything as before. A short-term advantage. In the words of the kolkhoz members, by plowing cattle tracks, the farm does not touch vacant plots in the village, plots that can be used with benefit. The doubtfulness of such an "advantage" for the kolkhoz, the inconvenience to its workers who have cows and the irritation of the residents of the settlement, past whose windows a big herd raises dust twice a day are also evident to the rayon executive committee. "This problem was examined at the meeting of the board of the Kolkhoz imeni Chapayev and was solved positively, that is, a plot was allocated for the track and fenced off.—G. Bocharov, chairman of the executive committee of the Gluskiy Soviet of People's Deputies."

It turned out, however, that the track was fenced off only with this formal answer. It was received by the editors exactly a year ago. We found out from the above-cited recent letter from the residents of the village of Slavkovichi that nothing has changed. They have dozens of oral and written requests to local and rayon authorities behind them. The summer began with the peasant's eternal and right concern: Where and how to graze the cow so that it may be satisfied, so that it may

give more milk, so that it may bring joy and not be a burden, which happened not only in the village of Slavkovichi, but in the village of Pogost in the same Gluskiy Rayon as well. The same fear of the farm to spend money on the care of the private herd is seen in this letter from the residents of this village.

In this village there is no track to the pasture either, but for another reason. There is no pasture for the private herd. Wild growing plots have been cultivated and forest land has been cut out and replanted with a forest, as though there is concern for land. However, not even a place for a boundary remained between the pasture for the public livestock and the pasture for the private livestock. There is simply no place to graze the private livestock. To all the requests and letters addressed to Comrade Kondrat'yev, director of the local Gluskiy Sovkhoz, the village residents receive an answer, which they evaluate at its true worth, that is, a formal answer: The sovkhos is unable to allocate a pasture for private cows, because... it does not have it.

"Many of us can, but are unable, to keep cows. We are in a critical situation; we graze them on cones in the forest. This is very annoying. After all, on the territory of our brigade there is a sufficient amount of pasture land--there is enough for the private livestock as well," write the residents of the village of Pogost.

We agree that, indeed, there is not enough land for pastures in these places and that the opinion of the village residents does not fully correspond to the true situation. However, they live on this land, the same pastures on which the public livestock grazes have been cultivated with their hands and they sell milk from private cows to the state. They should not have to look for pasture land on the neighboring farm! It is obvious that the Gluskiy Sovkhoz should share what is there on the spot with them. Perhaps the very "cones" on which they are forced to graze cows should be cultivated, or plots from pastures that have already been cultivated should be allocated. It seems that the third is impossible. But not only the directors of the Gluskiy Sovkhoz prefer the third variant, which is the cheapest and has no overheads, that is, not to think about pastures for private cows at all.

"Our village is big. The residents have about 80 head of large-horned cattle, but quite sparse fodder is allocated for winter. We wait for the summer and then we are in quite a critical situation: We don't have pastures," write the residents of the village of Filipany in Ostrovetskiy Rayon. "What milk surplus for the state can there be if we have to travel to Vil'nyus for milk, pot cheese and sour cream for ourselves? Moreover, the rural soviet decided to additionally allocate 0.10 hectares of land for keeping cows. They went to every yard and drew up special contracts, but everything remained on paper."

It appears that again the farm's calculations are limited to the desire to keep the kopeck by all means without taking into consideration tomorrow's profit to the state from well-organized private farms.

The indifference to the private cow sometimes shows its absurd side, which happened on the Kolkhoz imeni Suvorov in Stolbtsovski Rayon. One day early in May the cows of the residents of the village of Zuborevo from the neighboring farm were



caught on areas sown with perennial grass on this kolkhoz. (The shepherd ran to the village to warn the owners that their pregnant cow was lagging behind the herd and to ask that they take it away. When he returned, there were no cows in the forest). The owners, having found out that the cows were "in captivity" on the Kolkhoz imeni Suvorov (they were driven 12 km to the center from the sown areas), arrived there only in the evening.

"But they didn't give us the cows, they told us to pay 25 rubles for each," write A. Kramko, V. Klyuchnik, K. Yevseychik, M. Rayekaya, Z. Burdilovskaya, M. Gun'ko and L. Rayekaya. "We answered that we would pay tomorrow and that they should record all the names. Nevertheless, they did not return the cows. The cows stood behind the fence and the deputy chairman of the kolkhoz with a rifle and five other people guarded them. They told us to come tomorrow."

The next day the cow owners were asked to pay 30 rubles for a cow. Only towards the evening did they take away their un milked and hungry captives.

Perhaps the amount of the fine was exacted correctly and fully corresponded to the statute on the responsibility for the damage to crops (the rayon executive committee will answer this question to the cow owners more accurately and competently). But why was it necessary to keep animals "in captivity" for a whole day? After all, if a cow suddenly remains un milked and unfed on a farm, this is an extraordinary event! Using common sense, the owners of the stray cows should have been registered (since the rural soviet is right there, its representative could have helped to do this), then a bill for the damage to crops should have been presented to them, but the cows should have been released right away--let them give milk to their hearts' content. Instead a detective story with a guard under arms and ransom was played out, as though these were not cows, but saboteurs. The kolkhoz hastened to replenish its till with 720 rubles of fine--it has its own calculations. But thought was not given to the hungry and un milked private cows.

#### Help for Private Plots

Minsk SEL'SKAYA GAZETA in Russian 12 Jun 81 p 4

[Interview with P. Neborskiy, deputy chief of a main administration of the Belorussian SSR Ministry of Agriculture, by Zoya Zdanovskaya; date and place not specified]

[Text] We discussed letters of complaint. To tell the truth, in the mail there are no letters of thanks for concern for private cows. Well, they graze to their hearts' content--to whom and for what should one be thankful? After all, this is how it is supposed to be. Nevertheless, we asked P. Neborskiy, deputy chief of the main administration of the Belorussian SSR Ministry of Agriculture that supervises the fulfillment in the republic of the decree of the CPSU Central Committee and the USSR Council of Ministers "On Additional Measures To Increase the Production of Agricultural Products on the Private Subsidiary Farms of Citizens" to begin from positive examples: Let others learn.

[Answer] For example, take an average farm--the Pobeda Kolkhoz in Baranovichskiy Rayon. Its chairman Georgiy Vladimirovich Kozlyak and the kolkhoz board held meetings in brigades on all subsidiary farm problems. Pastures for the private herd were nourished, problems with hay mowing were explained beforehand and so forth. The Neman Kolkhoz in Stolbtsovskiy Rayon follows another path: There all the concern for private plots and for the provision of fodder for the private livestock was entrusted to a local brigade called "kommunkhoz." It is a pleasure to talk about such farms--they can be named one after another. On the basis of our information and personal observations I can state that there is no farm in the republic that could not find pastures for private cows. Of course, there is not much land in Belorussia. It cannot be compared with Siberia, where every private cow is given a pasture. We allocate plots for the herd. These plots can be found on every farm, only they must be taken care of, cultivated and nourished. This is the direct concern of farms.

[Question] Who in the localities supervises the concern of farm managers for the private subsidiary farms of rural residents?

[Answer] This is the personal duty of chiefs of oblast and rayon agricultural administrations and chief specialists. Every month we receive their reports with figures indicating how many pastures and additional plots were allocated on the basis of a contract, how many chicks, young hogs and rabbits were sold to the population and how many contracts for keeping young stock and other matters were concluded.

[Question] Tell us at a somewhat greater length about the contracts with rural workers. In their letters our readers ask about the procedure of conclusion of such contracts and their terms.

[Answer] First, this matter is particularly voluntary--there should be no coercion. But explanatory work is necessary. Three standard agreements were developed in the republic: for the delivery of young stock belonging to sovkhozes and kolkhozes to private farms and for the breeding of this stock by them, for the breeding of private livestock and its sale to a kolkhoz or sovkhoz and, finally, for the sale of surplus milk. According to these contracts, for example, hay, haylage and grain are sold to rural workers at state purchase prices, that is, cheaper. In addition to the private plot, irrespective of its size, the farm allocates up to 15 hundredths of a hectare of land for growing fodder (depending on local conditions). They are allotted from abandoned or temporary vacant land, from unsuitable land that has been adapted and so forth. If a contract is concluded, the farm mandatorily allocates for private cows pastures ranging from 20 to 40 hundredths of a hectare per head depending on local conditions. Help in potato planting and in seed exchange and plot replacement are envisaged. Credits are provided for the purchase of small-scale mechanization equipment.

[Question] Incidentally, concerning small-scale mechanization equipment. The editors were literally flooded with letters with one question: Where and when is it possible to buy a miniature tractor, about which information appeared in the newspapers. However, only an experimental batch of 100 tractors is being manufactured.

[Answer] Yes, this is a drop in the ocean, an experiment. This should be stressed in reports in order not to mislead people. Our ministry also receives letters with the same question. There is a great need for small-scale mechanization equipment. Leasing centers for servicing private subsidiary farms, as is done in Brestskaya Oblast, represent one of the methods of meeting this need.

[Question] Pyatr Pavlovich, in the editorial correspondence there is the following case: The author, referring to the decree on private plots, demands every kind of help, but local authorities answer that he does not deserve it, because he did not work in the public sector...

[Answer] They answer correctly. Those who did not engage in socially useful labor, but "worked" only for the market, now want to expand their personal enterprise, saying, there is a decree, give us the privileges and that's all. These types of private farms should not expect every kind of help. Rural workers, labor veterans and kolkhoz pensioners receive help. Everything is controlled by the contract and restrictions are in effect in respect to everything that is above it. All the instructions are already available in the localities. Efficient and energetic managers are guided by them successfully.

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CSO: 1824/309

## AGRO-ECONOMICS AND ORGANIZATION

### ACTIVITIES OF INTERFARM LIVESTOCK ENTERPRISES ANALYZED

Moscow VESTNIK STATISTIKI in Russian No 5, May 81 pp 7-15

[Article by B.I. Pleshkov, Doctor of Economic Sciences and Deputy Chief of the Agricultural Statistics Administration of the USSR CSA and A.I. Lutsenko, Candidate of Economic Sciences and head of a laboratory at the Scientific Research Institute of the USSR CSA: "Analysis of the Activities of Interfarm Livestock Enterprises"]

[Text] From the tribune of the 26th CPSU Congress, the General Secretary of the CC CPSU L.I. Brezhnev underscored the need for developing a special food program, one which must ensure a considerable increase in the production of agricultural products. In particular, Comrade L.I. Brezhnev stated: "The first task is that of raising the production of those types of agricultural products, the shortages of which would bring about noticeable interruptions in supply. I have in mind, in particular, meat and other animal husbandry products."

An acceleration in the intensification of agricultural production, more complete utilization of the advantages embodied in interfarm and intrabranh division of labor and in intense specialization and a high degree of concentration are closely associated with the development of interfarm cooperation. In recent years, the rates for the process of interfarm cooperation have increased noticeably. In this regard, an important role was played by the decree of the CC CPSU entitled "Further Development of Specialization and Concentration in Agricultural Production Based Upon Interfarm Cooperation and Agroindustrial Integration" (1976).

The obvious long-term and comprehensive effect of cooperation on the effectiveness of public production is raising the need for a more thorough study of this process and particularly with regard to uncovering the large reserves embodied in it for improving the agricultural economy. An analysis of the activities of interfarm enterprises embraces a broad range of problems: the rates and scales of cooperation, the role and place of interfarm enterprises in the production (sale) of the respective products throughout the country as a whole and in individual regions; the effect of cooperation on development of the processes of specialization and concentration, on the economy of a cooperating branch and on the overall production of participating farms. One of the most important component elements of analysis is an objective evaluation of the economic interrelationships between an interfarm enterprise and participating farms.

An analysis of interfarm livestock enterprises differs very little from an analysis of highly specialized sovkhoses, kolkhoses and livestock complexes -- here we have



the same indicators for concentration, labor productivity, production costs, profitability and so forth (owing to the high specialization of an interfarm livestock enterprise, the indicator for level of specialization is not of great importance here). At the same time, interfarm enterprises possess specific characteristics which are inherent only in this organizational form. They constitute voluntary cooperation on the part of kolkhozes and sovkhozes for the joint production of agricultural products. The principal problems (distribution of profit obtained from interfarm activities, construction, reconstruction and modernization, development of specialization and concentration and so forth) are being solved by a council of authorized representatives of the farms participating in cooperation. The council is also solving the principal problems associated with the production activities of the interfarm enterprise and its economic relationships with the participating farms. The more typical characteristics in the analysis of interfarm cooperation derive not only from close technological contacts (they can even exist among non-cooperative farms) but also from economic ones.

The sources of information used for analysis include: annual reports of interfarm enterprises, statistical works of interfarm agricultural enterprises in connection with principal production trends and statistical reporting of livestock complexes, with the data of interfarm complexes being taken into account.

First of all, let us examine such important (in our opinion) aspects of the process of interfarm cooperation in animal husbandry as concentration, interfarm and intra-branch division of labor and the problems associated with improving the economic relationships between cooperating enterprises.

During the past few years, the number of interfarm enterprises engaging in the production of livestock products has increased noticeably. During the 1976-1979 period alone, their number (excluding poultry factories) increased from 791 to 1,010, or by 28 percent. Among the animal husbandry branches, cooperation is developing at a more intensive rate in beef cattle husbandry and swine raising. Cooperation in dairy cattle husbandry and in sheep raising is not being employed quite as extensively.

In terms of specialization, the interfarm livestock enterprises are distributed as follows:

Table 1

Number of Interfarm Livestock Enterprises According To Principal Production Trends Throughout Country as a Whole

	1976	1979
For maturing and fattening of large-horned cattle	305	358
Swine raising	171	265
For maturing and fattening of several types of animals	232	170
For specialized raising of heifers	24	41
For production of milk	-	13
Sheep raising	17	29
Others	42	134

Of the overall number of interfarm livestock enterprises (excluding poultry factories), more than one half are located in the RSFSR and the Ukraine (295 and 285 respectively); in Uzbekistan -- 100, and in Azerbaijan -- 65.

However, the number of interfarm enterprises cannot serve as a sufficiently objective evaluation of the scales of interfarm cooperation. It would be more correct to use the indicators for the volume of products produced, output sales by the interfarm enterprises and their proportion on farms in the public sector of a specific region. The following example emphasizes the importance of the output volume indicator. In 1979, the proportion of interfarm cattle husbandry and swine raising enterprises in Moldavia, compared to their overall volume throughout the country, was 5 percent and the sales volume for large-horned cattle and swine -- 14 percent. At the same time, the proportion of interfarm enterprises engaged in the production of meat from long-horned cattle and swine in Georgia, compared to their overall number throughout the country, was 4.4 percent and in sales of the respective products -- less than 1 percent. The indicators for number of workers and value of fixed capital can be used as additional indicators for the scales of cooperation.

The production of livestock products at interfarm enterprises has increased noticeably in recent years. For example, during the 1976-1979 period the overall weight gain for large-horned cattle increased from 190,000 tons to 304,000 tons (by a factor of 1.6) and the weight gain for swine -- from 236,000 tons to 345,000 tons (by a factor of 1.5). The increase in output volume was caused not only by growth in the number of interfarm enterprises, but also by a substantial increase in the degree of production concentration, as evident in the data furnished in Table 2.

Table 2

**Rates of Growth for Principal Indicators of Interfarm Enterprises  
for Country as a Whole**

	Enterprises for Maturing and Fattening of Large- Horned Cattle		Swine Raising Enterprises	
	1976	1979	1976	1979
On the average for one enterprise:				
average annual number of workers engaged in agriculture	77	119	94	117
average annual value of fixed productive capital of an agricultural nature, in thousands of rubles	1,036	1,969	2,072	3,232
weight gain obtained, thousands of quintals	3.2	5.4	6.9	8.3
value of gross agricultural output (in comparable 1973 prices), in thousands of rubles	589	952	1,130	1,298

The process of concentration proceeded in a more intensive manner at beef cattle husbandry enterprises. Thus, whereas during the 1976-1979 period the average number

of workers at one cattle husbandry enterprise increased by 54 percent, the volumes for weight gain in large-horned cattle -- by 69 percent and the value of gross output -- by 62 percent. The leading rates of growth in production volumes, compared to the number of workers, are explained first of all by the growth in the availability of funds at the interfarm cattle husbandry enterprises and by an increase in the level of all-round mechanization.

The large-scale and highly specialized production operations at interenterprise livestock enterprises result from their higher economic indicators compared not only to kolkhozes but also to specialized sovkhoses (see Table 3).

Table 3

**Principal Indicators of Activities of Country's Interfarm Beef Cattle Husbandry Enterprises, Specialized Beef and Dairy Sovkhoses and Kolkhozes During 1979**

	Interfarm Enterprises	Beef and Dairy Sovkhoses	Kolkhozes
Average weight gain obtained for one enterprise (farm), thousands of quintals	5.4	3.3	1.7
Weight gain obtained, quintals per:			
100 man-hours	6.4	2.7	1.8
100 quintals of feed units	10.1	7.7	7.8
100 rubles of all expenditures	0.75	0.48	0.50
Level of all-round mechanization, in %	80.00	39.00	38.00
Profitability level for large-horned cattle, in %	28.00	11.00	-3

The data cited testifies to the comparatively high return realized at interfarm enterprises from all expenditures -- labor, material, financial. Compared to specialized sovkhoses, labor productivity here is higher by a factor of 2.4 and the return from feed -- by a factor of 1.3; the profitability for large-horned cattle is also higher.

It is not just by chance that we compare the interfarm enterprises against sovkhoses following corresponding production trends. Similar to interfarm enterprises, the specialized sovkhoses are characterized by a high degree of development of the principal branch and concentration of the cattle stock. At swine raising complexes, growth in concentration of the cattle stock is accompanied by considerable improvements in the economic indicators, as borne out by the grouping of these complexes in Table 4.

In the mentioned table and in the group having a maximum concentration of cattle stock (108,000 or more), compared to the group having from 12,000 to 24,000 head, the workload per operator is one third higher; direct labor expenditures per unit of output are lower by a factor of almost 4, and labor productivity is higher by a factor of 3.2. A greater return is realized from feed, the productivity of the herd is higher, and, consequently, production costs are considerably lower, and the level of profitability for swine raising output is higher.

Table 4

**Grouping of Swine Raising Complexes in RSFSR and Their  
Principal Indicators for 1979**

	Groups of Complexes Having a Planned Capability of..., in thousands of head			
	From 12 to 24	From 24 to 54	From 54 to 108	108 or more
Number of complexes	133	126	17	16
Level of all-round mechanization, %	86	87	92	97
Number of cattle serviced by one operator	300	396	468	404
Direct labor expenditures per quintal of weight gain, man-hours	12.1	10.7	4.6	3.2
Gross output of swine raising per worker, thousands of rubles	13	16	27	42
Feed consumption per quintal of weight gain, quintals of feed units	7.8	7.1	5.7	4.7
Average daily weight gain, grams	277	307	423	487
Young pigs obtained per 100 principal sows, number of head	1,308	1,345	1,748	2,092
Average weight of 1 swine sold to the state, kg	102	104	112	118
Production cost per quintal of weight gain, rubles	159	141	121	98
Profitability level for swine raising products, %	0.2	7.8	29.6	52.2

In addition to increasing the cattle stock, concentration promotes the creation of favorable conditions for the introduction of industrial methods for production management, the most important component elements of which are all-round mechanization of production processes and a progressive technology for maintaining and feeding the animals.

Interfarm complexes are characterized by a high degree of cattle stock concentration. In 1979, of the overall number of interfarm swine raising enterprises, the proportion of complexes was 71 percent and of the overall number of beef cattle husbandry enterprises -- 34 percent. During this same year, the concentration of cattle stock at interfarm swine raising complexes, compared to all interfarm swine raising enterprises, was higher by a factor of 2.4 and at swine raising complexes -- by a factor of 1.4. Labor productivity and output profitability were higher at complexes.

However, it would be incorrect to evaluate the effectiveness of the degree of cattle stock concentration using the simple formula: "the more, the better." In the final analysis, the proper degree of cattle stock concentration is determined using various factors, among which great importance is attached to the density of the population in the given region, the condition of the roads, the availability of processing capabilities and so forth, that is, the effect of a high degree of concentration can be reduced to naught if the consumers and meat combine are not located nearby. Another important factor here is ecology.



The overwhelming majority of interfarm livestock enterprises are characterized by a high degree of specialization. Thus, the principal product constitutes 89 percent of the gross output structure of beef cattle husbandry enterprises, swine raising -- 98 percent (at meat and dairy and swine raising sovkhozes, the level of specialization is 57 and 74 percent respectively). A single-branch development for interfarm enterprises, as already mentioned, does not require use of the specialization level indicator for analysis purposes.

At the same time, under the conditions imposed by interfarm cooperation, a great role is played by the indicators for intra-branch (by stages) and interfarm division of labor. The transfer over to an interfarm enterprise of individual or all of the technological stages for the production of a particular product exerts a substantial effect with regard to intensifying the division of labor on participating farms. At the present time, there are highly specialized interfarm enterprises for the raising of heifers and for the maturing and fattening of large-horned cattle and swine. The division of labor on an interfarm basis is also becoming more intense in dairy cattle husbandry.

The principal economic indicators describing the effectiveness of a division of labor by stages were called for in the program for statistical works on the operational results of interfarm enterprises, in accordance with the production trends. In addition, in the accounting for livestock complexes, the indicators for large-horned cattle are arranged according to two groups: raising of animals and also maturing and fattening; for swine -- indicators according to three groups: principal herd, including young pigs up until weaning, suckling pigs and swine during fattening, including replacement young stock.

The need for establishing indicators for these groups of animals, which correspond to the successive technological stages of output production, is associated with the considerable differences in productivity and, it follows, in the level of expenditures during these stages and with the requirements for an objective evaluation of the degree of effectiveness of intra-branch and interfarm division of labor. For example, in 1979, at interfarm complexes in Belorussia, the average daily increase in weight for a group of young pigs was 293 grams and for a group of swine undergoing fattening and replacement young stock -- 368 grams; in the Lithuanian SSR -- 378 and 497 grams, and in the Estonian SSR -- 315 and 583 grams. Accordingly, it is during these technological stages that the production costs accumulate. In other words, those agricultural enterprises which participate in interfarm cooperation are by no means indifferent to the degree of division of labor at which a maximum economic effect takes place -- during a closed production cycle for livestock products or with the dispersal of successive technological stages of production among cooperating enterprises.

During this modern stage in beef and dairy cattle husbandry, practical experience has confirmed the advisability of interfarm division of labor, with individual technological operations being carried out at various enterprises participating in cooperation. The effect of concentrating all production stages at one enterprise is more obvious in the case of swine raising. Mandatory conditions in this instance include a high degree of concentration for the livestock capita and all-round mechanization of the production processes. However, as yet the economic effect of concentrating all technological stages at one enterprise, at interfarm swine

raising enterprises having a closed production cycle, is still extremely negligible. It would seem that a high degree of concentration in the case of swine (an average of 13,000 head per enterprise at the beginning of 1980) is creating the prerequisites for introducing all-round mechanization, a progressive technology and increased production effectiveness. But since the level of all-round mechanization at these enterprises (and they are actually complexes) is only 75 percent, the expenditures of live labor are relatively high and its productivity low. Compared to the country's sovkhos complexes (the overwhelming majority of them also have closed production cycles), where the level of all-round mechanization is 91 percent, at interfarm enterprises the direct labor expenditures per unit of output are higher by a factor of 2.4 and labor productivity is lower by a factor of 2.6. And the other economic indicators are also lower.

Thus, existing statistical information makes it possible to analyze the status and development of the processes of intra-branch and interfarm division of labor and its effectiveness. But an analysis of these processes is possible today only as they apply to interfarm enterprises. With regard to farms participating in cooperation, an evaluation of the process of division of labor on such farms requires the working out of a number of methodological problems, systems of appropriate indicators and well organized primary accounting.

It is also noted that existing accounting does not provide the complete information required for uncovering and studying those factors which determine the final production results of interfarm enterprises. The absence of such data must be offset by a monographic investigation.

Special importance is attached to a monographic investigation for uncovering reserves for improving the economies of interfarm enterprises which are subjected to natural conditions similar to those in the given oblast (krai, ASSR) or given administrative rayon. In actual practice there are no singular examples of agricultural enterprises which enjoy similar or even equal natural conditions and have the same principal parameters (degree of concentration of the cattle stock, capital-labor ratio, level of all-round mechanization and so forth), differing sharply in terms of their resultant indicators. Hence, the problem here is not so much concerned with the availability of labor or material resources as it is with the level of their use, the level of organization and production organization.

Experience has shown that with an absolute growth in the scales of interfarm cooperation the proportion of cattle sold on an interfarm basis, compared to the overall number sold by public farms throughout the country, remains negligible. In 1979, this proportion was only 8 percent for large-horned cattle and 18 percent for swine. What is the explanation for such a situation?

Without underestimating the role played by all other factors affecting the rates and scales of cooperation, we believe the following to be decisive factors: mutually beneficial relationships among all those participating in the cooperation and interest by the partners in cooperation in this form of production organization. The real foundation for cost accounting relationships among those participating in interfarm cooperation -- accounting prices. An interfarm enterprise not only compensates the farms participating in cooperation for the cattle, poultry and feed turned over (or more accurately, sold) to it, but in addition it ensures that these

farms realize a definite level of profitability from these products. The accounting prices are based upon a normative production cost for the respective products. Growth in the level of profitability for these products and, in the final analysis, in the income of the participating farms, will be directly dependent upon a reduction in expenditures for the production of the products, compared to the normative. Such commodity-monetary relationships serve as a fine stimulus for all those participating in cooperation, with regard to increasing production and raising its efficiency.

In conformity with the "Instructions on the Principles for Developing Accounting Prices for Cattle, Poultry and Feed Obtained From Farms Participating in Interfarm Cooperation and on the Method for Establishing Such Prices," approved in 1977, the participating farms receive a price for the cattle sold from the interfarm enterprise, depending upon the age and nutritional state, which will exceed the procurement price level (per unit of output) by a minimum of one and a half times. However, this does not preclude the possibility of redistribution, to the participating farms, of the profit obtained by the interfarm enterprise following the sale of the cattle to a meat combine.

The materials of inspections carried out by statistical organs have shown that a majority of the interfarm enterprises (or kolkhozes and sovkhoses performing the functions of interfarm enterprises) do not have at hand the instructions on the principles for developing accounting prices and they are continuing to use procurement prices. It is believed that this represents one of the most important causes of the low rates of development for interfarm cooperation. This is why special attention was given to the problem of mutually advantageous relationships when analyzing the scales and rates for this process. This requires a comparative evaluation of the activities of two interfarm enterprises -- the one where the relationships with participating farms are predicated upon a truly cost accounting basis and the other -- where procurement prices are employed.

The Kolkhoz imeni Uritskiy in Gomel'skiy Rayon in Gomel'skaya Oblast serves as an example of the role played by mutually advantageous relationships among participants in interfarm cooperation in expanding production and strengthening the economies of farms. Since 1975, the Kolkhoz imeni Uritskiy has been performing the functions of an interfarm enterprise for the maturing and fattening of large-horned cattle. All 17 kolkhozes in the rayon are participating in cooperation. As a result of the modernization and construction of new facilities, a livestock complex for 11,000 animals was created at the kolkhoz. The expenditures of the participating farms for building the complex and also for organizing the feed base (7.6 million rubles) were repaid in less than 3 years. In addition to the maturing and fattening of cattle, the kolkhoz also produces feed and fully satisfies the requirements of the complex. The procurement plans for grain, potatoes and milk were turned over to the participating farms.

Based upon the data furnished in Table 5, it is apparent that interfarm division of labor under cooperation conditions and a high degree of production concentration have brought about considerable growth in the principal resultant indicators for cattle husbandry, from both a quality and quantity standpoint.

A well-organized cost accounting mechanism of mutual relationships provides the basis for raising the efficiency of cooperating enterprises in Gomel'skiy Rayon. The



participating farms are supplying the Kolkhoz imeni Uritskiy with young large-horned cattle stock which are less than 20 days of age and weigh an average of 40-45 kilograms. The supplier-farm receives 500 rubles per quintal of delivery weight. The profit is distributed after the cattle have been sold to a meat combine. At the end of 1979, for example, 2.5 million rubles, or 345 rubles per quintal (this also included payments for feed delivered and for share participation in cooperation), were distributed among the participating farms. In all, the participating farms received 1,045 rubles (in 1978 -- 1,105 rubles) from the Kolkhoz imeni Uritskiy per quintal of large horned cattle. The profitability level for the cattle, for all kolkhozes in the rayon, was 54 percent and at the Kolkhoz imeni Uritskiy -- 34 percent.

Table 5

Principal Indicators for Activities of Kolkhozes in Gomel'skiy Rayon Prior To and Following Cooperation

	Kolkhozes in Rayon (including Kolkhoz imeni Uritskiy)		Kolkhoz imeni Uritskiy	
	Prior To Cooperation	Following Cooperation	Prior To Cooperation	Following Cooperation
	1974	1979	1974	1979
Weight gain obtained, thousands of quintals	35.2	53.0	6.7	30.9
Average daily weight gain, grams	457	529	584	758
Expenditures per quintal of weight gain:				
feed, quintals of feed units	10.7	9.9	10.1	7.7
direct labor expenditures, man-hours	36	25	26	8
Production cost per quintal of weight gain, rubles	161	192	164	143
Average weight of one head of cattle following fattening, kg	356	406	415	445
Sold to state, thousands of head	9.9	14.7	2.8	7.4
Proportion of cattle sold in high nutritional state, %	74	88	95	96
Average price per quintal of live weight of cattle, rubles	236	284	273	311
Net profit from sale of cattle, millions of rubles	3.3	7.1	1.1	4.3
Profitability level for cattle (prior to distribution of profits), %	51	51.6	4.7	82.3

Thus the mutually advantageous relationships between the cooperating enterprises ensured high rates of production. During the past 5 years, the weight gain volume for all kolkhozes in the rayon increased by a factor of more than 1.5 and the five-year plan for the sale of meat to the state was fulfilled in less than four and a half years.



Improvements in cost accounting relationships, particularly under the conditions of interfarm cooperation is an important element with regard to the formation and development of new forms for organizing and controlling agricultural production. "A lively and developing organism for controlling an economy", stated L.I. Brezhnev during the 26th CPSU Congress, "should not be adapted to settled and usual forms. To the contrary, the forms must be made to conform with the changing economic tasks."

Beyond any doubt, the experiment in cooperation among kolkhoses in Gomel'skiy Rayon can be employed extensively in other republics.

There has been no attempt made in this present article to touch upon all of the problems associated with analyzing interfarm livestock enterprises; rather, a preference has been shown for those problems which, in our opinion, are of great importance in connection with further expansion and intensification of the cooperation process.

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CSO: 1824/281

## AGRO-ECONOMICS AND ORGANIZATION

### PROBLEMS OF PROFIT DISTRIBUTION IN RSFSR SKOTOPROM COOPERATION

Moscow FINANSY SSSR in Russian No 3, May 81 pp 14-19

[Article by G.T. Goygel, Candidate of Economic Sciences: "Some Problems Concerned With Distribution of Profits Under Cooperation"]

[Text] One widespread form of cooperation in meat production is that of creating specialized farms for the maturing and fattening of cattle, farms which are supplied with livestock by multi-branch kolkhozes and sovkhoses. The division of labor, with one farm engaging in the reproduction of the young stock and others concerned with maturing and fattening them, raises the need for utilizing the latest achievements of science and engineering. Under cooperative conditions, technologically specialized farms are organized. In the decree of the USSR Council of Ministers entitled "Approval of a General Statute on an Interfarm Enterprise (organization) in Agriculture," dated 14 April 1977, they are defined as kolkhozes and sovkhoses which carry out the production functions of interfarm enterprises. In the case of cooperation, one principle must be observed in a very strict manner -- the material interest of farms, kolkhoz members, sovkhos workers and the workers of other enterprises in developing and raising the efficiency of public production for the association as a whole and also for each enterprise separately. An economic analysis of interrelationships under cooperation in the production of large-horned cattle meat has revealed: that this principle is not always being observed and that this is adversely affecting the rhythmic operations of the specialized farms and also production efficiency. A clear example of this is the financial-economic relationships of the sovkhoses of RSFSR Skotoprom [Cattle Industry] with the multi-branch kolkhozes and sovkhoses in the republic.

The interrelationships of RSFSR Skotoprom sovkhoses with the multi-branch farms participating in cooperation have been set forth in the Model Agreement on the System and Conditions for Delivering Cattle for Maturing and Fattening as Rayon (inter-rayon) Interfarm Associations, approved on 28 February 1979 by the RSFSR Ministry of Agriculture, by agreement with the RSFSR CSA. Two variants are established in the agreement for distributing profit obtained from the sale of animals raised by joint efforts. In the first instance, the sovkhoses of Skotoprom make payment to the farms participating in cooperation, for the delivered weight of the cattle, in accordance with the intra-departmental accounting prices. Based upon the annual results, the Skotoprom sovkhoses use their earnings to cover all of their own expenditures and the remaining portion is distributed among the fattening farm and the farms, proportional to the delivered weight and weight increase sold, evaluated on the basis of normative expenses. In the second instance, the Skotoprom sovkhoses pay the farms

for the delivered weight of the cattle according to the state procurement prices and the profit obtained from the sale of the cattle is distributed among the fattening farm and the participating farms, proportional to the value of the delivered weight and weight increase sold, evaluated on the basis of normative expenses (taking into account the cattle weight groups).

The recommendations of Skotoprom with regard to the financial relationships between its sovkhoses and farms -- the suppliers of young stock -- are general in nature and contain no efficient methodological approaches for solving a number of problems, such as estimating the delivered weight of young stock or determining the normative expenses of the cooperating farms feed costs and so forth. Thus, in practice, an economically unsound determination is observed of the profit obtained from the joint activities of cooperating farms and its distribution among them.

It is known that the Skotoprom sovkhoses sell large-horned cattle, the live weight of which consists of two parts. The first part -- the delivered weight of the animals, obtained at the multi-branch farms, and the second -- the weight increase achieved directly at the Skotoprom sovkhoses. Thus the amount of profit obtained from the joint activities of cooperating farms is dependent upon an evaluation of the live weight of the cattle upon delivery to the Skotoprom sovkhoses. The data furnished in Table 1 allows one to make a judgement concerning the effect of this evaluation upon the overall indicators for the financial-economic activities of Skotoprom sovkhoses.

On the whole, the Skotoprom sovkhoses earned profit during 1979, and in Orenburgskaya Oblast production profitability exceeded 30 percent. However, if we analyze the formation of profit separately by cooperating farms, taking into account the stage in the technological cycle, then it becomes clear that its principal portion and at times even the entire amount is formed as a result of a low evaluation by the Skotoprom sovkhoses of the delivered weight of animals from the farms participating in cooperation. Thus, at Skotoprom sovkhoses in Altayskiy Kray and Orenburgskaya Oblast, 66 and 69 percent of the overall profit respectively was obtained from the sale of the delivered weight of animals from farms participating in cooperation. In Kurskaya Oblast and throughout the RSFSR on the whole, the Skotoprom sovkhoses produced meat at a loss and these losses were covered and profitability was ensured on the basis of earnings from the sale of delivered weight. This became complicated owing to the fact that the evaluation of delivered weight was carried out at the rate of 113.8-136.6 rubles per quintal of live weight and its sales price amounted to from 144.7 to 178.8 rubles. Moreover, the low evaluation of the delivered weight improved the overall indicator for the production cost for meat and it lowered the expenses of the fattening sovkhoses. For the existing production cost for 1 quintal of weight increase at Skotoprom sovkhoses of from 136.7 to 184.2 rubles, the full production cost for a quintal of meat sold amounted to only 127-163.6 rubles.

In addition to an incorrect determination of the profit obtained from joint production operations, the existing interrelationships are also not ensuring an equivalence in the distribution of profit among the Skotoprom sovkhoses and the farms participating in cooperation. This is readily apparent in the example of profit distribution in Yadrinskiy Rayon in the Chuvashskaya ASSR (see Table 2).

Based upon the data furnished in Table 2, it is apparent that when determining computed profit the delivered weight for the animals of multi-branch farms is

Table 1

**Formation of Profit From Sale of Large-Horned Cattle by RSFSR Skotoprom  
Sovkhoses in 1979 (according to annual report data)**

	RSFSR	Skotoprom Sovkhoses		
		Including		
		Altayakiy Kray	Kurskaya Oblast	Orenburgskaya Oblast
Cattle sold in live weight, thousands of quintals	11,157.4	376.3	421.6	366.9
Earnings from sales, millions of rubles	1,995.3	64.6	61.0	61.2
Sales price per quintal of weight, rubles	178.8	171.7	144.7	166.8
Complete production cost, millions of rubles	1,825.6	54.6	53.8	46.6
Production cost per quintal of live weight, rubles	163.6	145.1	127.6	127.0
Profit from sale of cattle, millions of rubles	169.7	10.0	7.2	14.6
Profitability, %	9.3	18.3	13.4	31.3
from overall amount:				
delivery weight of animals sold, thousands of quintals	4,833.9	182.9	309.1	216.3
Earnings according to average existing sales price, millions of rubles	864.3	31.4	44.7	36.1
Evaluation of 1 quintals of delivery weight by Skotoprom sovkhoses, rubles	136.6	135.5	113.8	120.2
Production cost for delivered weight, millions of rubles	660.7	24.8	35.2	26.0
Profit, millions of rubles	203.6	6.6	9.5	10.1
Weight increase of Skotoprom sovkhoses sold, thousands of quintals	6,323.5	193.4	112.5	150.6
Earnings according to average existing sales price, millions of rubles	1,130.6	33.2	16.3	25.1
Production cost per quintal of weight increase produced, rubles	184.2	154.0	165.3	136.7
Production cost for weight increase produced, millions of rubles	1,164.9	29.8	18.6	20.6
Profit (+), loss (-), millions of rubles	-34.3	+3.4	-2.3	+4.5

evaluated at 148 rubles (actual production cost 227.1 rubles) per quintal and the weight increase for the sovkhos -- according to an actual production cost of 178.8 rubles. When determining the normative expenses, the delivered weight and weight increase are evaluated in like manner, the normative expenses for the sovkhos were increased by twice taking into account the cost of the fees (in the expenses for weight increase and separately). All of this led to an increase in profit from the production of meat and to an incorrect distribution of this profit. As a result, the multi-branch farms obtained 193.8 rubles of earnings per quintal of live weight sold, or 19.4 rubles less than the actual earnings from sales and 46 rubles less than the Skotoprom sovkhos received. At the same time, the sovkhos received



earnings which were 26.6 rubles more than the actual prevailing sales price from the sale of its own weight increase. As a result, meat production at the multi-branch farms was unprofitable, while profitability at the Skotoprom sovkhoz exceeded 36 percent.

The system for determining normative expenses is somewhat different in Orenburgskaya Oblast. Here the delivered weight is evaluated according to a higher price than the weight increase. However, this does not ensure the material interest of the farms -- the suppliers of young livestock. Thus the Skotoprom Sovkhoz in Buzulukskiy Rayon sold 30,300 quintals of large-horned cattle meat in live weight during 1979, of which amount 17,900 quintals represented the delivered weight of the participating farms and 12,400 quintals -- the weight increase of the sovkhoz. The earnings amounted to 5.02 million rubles and the average sales price for a quintal of live cattle weight -- 165.7 rubles. When determining profit, the delivered weight was evaluated at 111.8 rubles per quintal and the weight increase -- according to an actual production cost of 134.5 rubles, that is, just as in the Chuvashskaya ASSR, the principal bulk of the profit of 965,300 rubles, or 71.7 percent of the overall computed amount of 1.34 million rubles, was received as a result of earnings from the sale of the delivered weight.

When determining the normative expenses for cooperating farms, the delivered weight is evaluated at 154.4 rubles per quintal of live weight and weight increase at 124.9 rubles. Here it would seem that more attention would be given to the fact that more laborious stages in the production of meat at the multi-branch kolkhoses and sovkhozes, but this is by no means fully taken into consideration. This evaluation is lower than the actual expenses by an average of 36.8 rubles per quintal for farms in the rayon, while at the same time the evaluation of weight increase for the sovkhoz is lower than the existing expenses by only 9.6 rubles. As a result of such a system of profit distribution, the farms which supplied the animals received 848,000 rubles of computed profit, or 117,300 rubles less than were actually earned from the sale of delivered weight. On the whole, the farms received 159.2 rubles of earnings from the sale of a quintal of delivered weight, or 6.5 rubles less than the existing price for overall meat sales and 32 rubles less than their average expenses. The Skotoprom sovkhoz obtained 2.15 million rubles of earnings, an average of 174.6 rubles per quintal, or 8.9 rubles higher than the average sales price for all of the meat and 40.1 rubles more than the actual existing expenses per quintal of weight increase. On the whole, the supplying farms carried out their meat production at a loss, while the profitability at the Skotoprom sovkhoz was 29.8 percent.

The interrelationships established based upon specially developed intra-departmental accounting prices are not creating material interest in the cooperating farms. As a rule, these prices are computed based upon profit distribution according to the rule "equal profit per ruble of current expense." However, the profit from the joint activities is being determined with the same mistakes that were pointed out earlier. An analysis of the accounting prices established for young livestock in the Chuvashskaya ASSR and in Voronezhskaya and Kurganskaya Oblasts has revealed that an equivalent distribution of profit is not being achieved among the cooperating farms. The specialized farms operate under more favorable conditions. For example, in the Chuvashskaya ASSR, an accounting price of 190 rubles per quintal of live weight has been established for young large-horned cattle stock having a live weight per head in excess of 200 kilograms, while the expenses per quintal of weight increase at the

Table 2

**Formation and Distribution of Profit for Meat Production in Yadrinskiy  
Rayon in the Chuvashskaya ASSR During 1979**

Indicators	Total	Including	
		For Delivered Weight	For Weight Increase
Cattle sold in live weight, quintals	12,297	7,120	5,177
Average sales price for 1 quintal of weight, rubles	213.2	213.2	213.2
Earnings from sales (line 2 X line 1), thousands of rubles	2,622.0	1,518.0	1,104.0
Evaluation for 1 quintal of live cattle weight when determining computed profit, rubles	160.4	148.0	178.8
Computed production cost for cattle sold (line 4 X line 1), thousands of rubles	1,973.5	1,054.0	919.5
Computed profit from joint activities (line 3 - line 5), thousands of rubles	648.5	464.0	184.5
Evaluation of 1 quintal of live cattle weight when determining normative expenses, rubles	148.0	148.0	148.0
The cost of cattle according to normative expenses (line 7 X line 1), thousands of rubles	1,820	1,054.0	766.0
Cost of delivered feed, thousands of rubles	505.7	120.9	384.8
Total normative expenditures (line 8 + line 9), thousands of rubles	2,325.7	1,174.7	1,151.0
Distribution of profit according to normative expenses, thousands of rubles	648.5	326.5	322.0
Total earnings (line 5 - line 11)	2,622.0	1,380.5	1,241.5
Earnings per quintal of live weight (line 12 : line 1), rubles	213.2	193.8	239.8

multi-branch farms is on the order of 190-220 rubles, that is, the intra-departmental price does not always compensate for the expenses. It should also be noted that this price is lower than the existing price for the sale of meat by fattening sovkhoses.

Analysis has shown that a system of mutual accounts for the animals has still not been found which would ensure mutually beneficial cooperation for farms joined together in a single technological process for the production of meat. The complexity of the problem derives from the fact that, owing to biological peculiarities, the production tasks in the raising of animals during the various stages in the technological cycle differ, as do also the potential possibilities for growth in the young stock depending upon their live weight and age. The multi-branch farms carry out the more important stages in the production of meat -- the obtaining of offspring and raising them through the first months of life, work characterized by great labor-intensiveness and a high output-capital ratio for production. In the majority of instances, the Skotoprom sovkhoses are carrying out animal fattening work, which in terms of labor and resource expenditures cannot be compared with the initial stages of meat production. Thus an evaluation of the

delivered weight and weight increase according to the state procurement prices is not acceptable, since they were established based upon average expenses for meat production on the whole, in accordance with the entire technological cycle, and cannot reflect expenses for individual stages.

For the given form of cooperation, mutual accounts for animals and feed delivered, in accordance with specially developed accounting prices are the most feasible. This derives from the fact that the cooperating farms are legally independent and their production contacts are expressed mainly in the delivery and acceptance of animals and partly feed. In this form of cooperation, the accounting prices, as a method for distributing profit obtained from joint activities meet the requirements of cost accounting to a greater degree.

The establishment of accounting prices for young stock of differing live weights must commence with a correct computation of the normative expenses for cooperating farms. For a majority of the items used in calculating the production of weight increase during various stages, normative documents have been developed which should be used when determining the normative expenses. The feed consumed is covered by a general statute on evaluating the feed according to its production cost. When determining these expenses for the purpose of establishing the accounting prices, use should ideally be made of the average prevailing production costs for the feed in recent years on the cooperating farms. The number of years for computing the average prevailing production cost for feed is determined in each specific zone, depending upon how correctly it reflects the average production conditions.

However, it is believed that under cooperative conditions the existing normative indicator for expenses for obtaining offspring should not be used. The established system for evaluating a calf upon birth, particularly adjusting its production cost to the planned production cost for 1.5 quintals of milk, does not reflect the actual expenses for obtaining it. This is borne out by the ratio of feeds required for the development of offspring and for the production of 1 quintal of milk. The scientists have established that the expenditures of digestible protein for a calf amount to 15-15.3 kilograms and for 1.5 quintals of milk only 4.9-5.1 kilograms, or for a digestible protein norm of 110 grams in one feed unit the feed expenditures amount to 140 and 45 feed units respectively. Hence the reduction in expenditures for a calf amounts to a factor of more than three. Roughly the same amount of feed is required for a calf as is required to maintain a cow during the interlactation period.

It appears that when evaluating the offspring emphasis should be placed mainly upon the expenses for the cow during the interlactation period, after having differentiated somewhat the individual items and having added those indicators having a direct bearing upon the formation of the offspring. In the most general view of the cost of a calf, the following expenses should ideally be included: expense for inseminating the cow; cost of the maintenance ration during the interlactation period; feed cost for the formation of the offspring during its development; wages for the workers servicing the cow during the interlactation period, including a payment for obtaining the calf; amortization for the artificial insemination station; amortization for the production facilities in which the cow is maintained during the interlactation period, other direct expenses and also general farm and general production expenses for the cow during the interlactation period. Such a system



for establishing production costs will make it possible to determine the actual expenses for obtaining offspring and exclude unjustified expenditures from the expenses for milk.

One peculiarity associated with the establishment of accounting prices for young stock is the fact that their amounts are strictly limited by the level of the existing procurement prices for animals sold. Thus, for computing the accounting prices, only the function of correct distribution of profit from the sale of jointly raised animals, among the cooperating farms, is typical. In this regard, importance is attached to correctly determining the profit realized from the sale of the animals, the expenditures of the farms -- those participating in cooperation -- and to selecting an economically sound principle for establishing the accounting prices.

It is known that the amount of profit is determined as the difference between the earnings from the sale of the animals, in accordance with the existing state procurement prices, and the production expenses incurred for raising and fattening them. Thus, when determining the accounting prices, importance is attached first of all to determining correctly the sales price for a quintal of live weight, the formation of which is greatly influenced by the nutritional value of the animals sold and their delivery at a raised live weight.

It appears that the state of nourishment of the animals and their delivery at raised live weights, which basically affect the sales price level, must be established in a firm percentage of the overall cattle sales. When establishing this percentage, one must take into account the true opportunities available for improving the animals to these conditions and, based upon the specific production conditions during the initial years of functioning of the specialized farms, the amount of sales of the indicated animals should initially reach the level achieved, with a certain surplus for improving the work of raising and fattening the animals, both on the specialized farms and on those farms which supply the young stock. The sales price must be reviewed systematically and raised taking into account the modern technologies for meat production and the conversion of the cooperating farms over to unified and progressive technologies for achieving the optimum level.

Following the carrying out of the above-mentioned work, a concept must be selected for price formation which will meet the accounting price requirements to a greater degree. Several points of view exist with regard to this problem and they have been presented in the press. The first -- the accounting prices must be established based upon the same level of profitability, with regard to production expenses, for those farms participating in joint production operations. In actual practice, this principle is often referred to as "equal profit per ruble of production expense." The second -- the distribution of profit should be carried out proportional to the productive capital. And the third -- the distribution should be carried out proportional to the expenditures of live labor in the production of meat. In the "Instructions on the Principles for Developing Accounting Prices for Cattle, Poultry and Feed Obtained From the Farms of an Interfarm Enterprise and on the System for Establishing Them," approved by the State Price Committee of the USSR Council of Ministers and the USSR Ministry of Agriculture, by agreement with the USSR CSA, dated 16 August 1977, No. 135-1, viewed as one possible approach, the two latter principles are combined: 75 percent of the profit to be distributed proportional to the productive capital and 25 percent proportional to the expenditures of live labor (wages).



At the present time, the first approach for establishing the accounting prices is considered to be less complicated and thus it is being employed more extensively. However, we are of the opinion that this principle for establishing the accounting prices is hardly acceptable for the production of large-horned cattle meat. The adherence to the concept of "average" cost leads to a situation wherein interest is not created in lowering the current monetary production expenses and quite often the farms are motivated into producing products which have high production costs. The principal shortcoming of this particular principle lies in the fact that, during price formation, insufficient consideration is given to all of the production factors. It assigns the mark of equality to completely different technological stages in the production of meat -- reproduction, raising and fattening of the animals, stages which are characterized by their output-capital ratio and labor intensiveness. In accordance with the above-mentioned instructions, the production of 1 quintal of weight increase requires the following productive capital: at reproduction farms -- 502 rubles worth; at farms for the maturing of livestock -- 128 rubles and at fattening farms -- 41 rubles. Similarly, in terms of labor expenditures (wage fund), the indicators are 66, 26.7 and 7.5 rubles respectively. This principle for establishing the accounting prices has still one other shortcoming -- ensuring the average level of production profitability is not an adequate measure for ensuring interest on the part of the kolkhozes and sovkhoses in delivering young stock, at an early age, to the specialized farms.

When developing the accounting prices, emphasis must be placed upon the need for ensuring that the basic principles of cooperation -- economic responsibility and interest by the farms in developing their production operations -- are not interpreted to mean that an identical level of profitability with regard to expenses must be established for each stage. In animal husbandry, the early stages of production are the foundation for subsequent successful work by the farms and thus increased motivation during these stages is advisable. In actual practice, these peculiarities are already being taken into account. In a number of oblasts, krais and republics, under cooperation conditions, accounting prices on the order of 450-600 rubles per quintal of live weight are being established for calves less than 20 days old; this exceeds the state procurement prices by a factor of 3-5.

Accounting prices which were established taking into account the productive capital of cooperating farms and which are proportional to the expenditures of live labor can ensure a differentiation of profit in conformity with the peculiarities of meat production during the different technological stages. However, the use of these principles requires definite and equal production conditions on the cooperating farms. The distribution of profit proportional to the capital of participating farms requires a roughly equal availability of capital for the farms, from the standpoint of conformity to the achieved level of science and engineering, for each stage in the production of large-horned cattle meat. In such a case, the distribution of profit among the cooperating farms cannot be justified if the fattening is to be carried out on a modern technological basis, or if the reproduction or maturing is to be carried out using obsolete methods and conversely.

The second principle also has definite flaws. The distribution of profit proportional to the expenditures of live labor provides most advantageous conditions for those who selected labor-consuming variants for organizing production operations, that is, this concept is definitely in conflict with technical progress.

The establishment of accounting prices in this manner is possible only in those instances where the competing farms employ unified production technologies which, under modern conditions, ensure rational expenditures of labor at each stage of production. For example, it should not be used if the fattening of the animals is carried out at farms having a high level of mechanization and automation of all processes and other operations -- with great expenditures of live labor.

In view of the fact that it is difficult at the present time to find specific regions throughout the country where the conditions for producing meat on the farms would make it possible to employ more effectively each of the principles mentioned, the establishment of accounting prices based upon the indicators for normative requirements for productive capital, per quintal of weight increase during the various stages of production, appears to be more acceptable. This will ensure a differentiated production profitability for current expenses based upon the complexity and output-capital ratio for the technological operations. For example, let us take the computations for the farms in Ketovskiy Rayon in Kurganskaya Oblast. Here the stages of the production process are clearly defined: the reproduction farms obtain offspring and mature them to a live weight of 50 kilograms; the Lesnoy Sovkhoz raises young stock from a live weight of 50 kilograms to 250 kilograms; the Rovenskoye interfarm enterprise fattens animals from 250 kilograms up until they are sold to the state. The ratio of the accounting prices at these farms is 1.4 - 1.13 - 1 and profitability with regard to production expenses -- 44.3, 15 and 6.8 percent, for an average level on the whole of 14.6 percent for the technological cycle. This ensures the same rates of expanded reproduction for the cooperating farms and also their synchronous and harmonious development.

The accounting prices for young large-horned cattle stock must not be of a universal or permanent nature. They should be determined taking into account the age and live weight of the young stock and they should be corrected annually as improvements take place in the production operations being carried out on those farms participating in cooperation. So-called "graduated prices" should be determined and established which during the first few years would reflect the production level achieved and which during the next 4-5 years would take into account the introduction of scientific and engineering achievements. This would stimulate the introduction, in a planned manner, of new and progressive technologies and a campaign to raise the efficiency of meat production.

The approach examined for determining the accounting prices for young large-horned cattle stock will serve to strengthen cost accounting, it will interest the farms in specialization for definite stages in the production of the finished product and it will accelerate the conversion of the branch over to an industrial basis.

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CSO: 1824/316

**IMPORTANCE OF IMPROVING GRAIN PRODUCTS, INCREASING FEED GRAIN**

**Moscow ZERNOVOYE KHOZYAYSTVO in Russian No 6, Jun 81 pp 2-4**

**[Article: "The Most Important Link of the Foodstuffs Program"]**

**[Text]** The 26th CPSU Congress convincingly confirmed that the party is confidently continuing the work of Great October, is consistently implementing the eternal ideas of Lenin and is worthily fulfilling the role of political leader for the working class and for all Soviet people. In invincible unity with the party and under its leadership our people with their labor are multiplying the economic and defensive power of the homeland, improving the system of public relations and securing the continued growth of culture. The Soviet people thoroughly understand and support party policies, the highest aim and goal of which are the growth of national well-being and the preservation and strengthening of peace in the world.

The management of the national economy is the essence of all party and state activities. Here the springboard of the party and political approach to the economy has been and remains: "In the name of man, for the good of man." "This is the basis," noted the General Secretary of the CPSU Central Committee, Comrade L. I. Brezhnev, "for the policies of the 24th and 25th CPSU congresses directed at a more thorough turn of the national economy toward the multitude of goals related to improving the well-being of the people."

The continued growth of the well-being of Soviet people will be secured on the basis of the stable and advancing development of the national economy, of accelerating scientific-technical progress and moving the economy towards intensive development, of more efficiently utilizing the production potential of the country, of overall economizing on all types of resources and of improving work quality. The essence of the party's economic strategy at the current level is reflected in the main goals of the 11th Five-Year Plan.

The broad program for further improving the well-being of the people encompasses the most varied aspects of the life of Soviet people--consumerism and living facilities, work and living conditions, culture and relaxation. The main goal is to improve supplies of foodstuffs and consumer goods that are in large demand. This is especially true since in some cases there are difficulties in supplying the population with meat and other products from livestock raising.



Based on this, the CPSU Central Committee passed a resolution on the development and realization of a special-purpose foodstuffs program, which is being called upon to unify the growing scientific-technical and production potential of agriculture and the industrial enterprises serving it and on the basis of this to accelerate the fulfillment of the most important goal of communist building.

The "Basic Directions of Economic and Social Development in the USSR in 1981-1985 and in the Period to 1990," state: "The main goal of the agro-industrial complex is the dependable supply of foodstuffs and agricultural raw materials to the country."

"With the aim of successfully realizing the food program, to achieve unified planning, the proportional and balanced development of the branches in the agro-industrial complex, a significant strengthening of its material-technical base, the improvement of economic ties among branches, the organization of their interaction in increasing agricultural production output, the improvement of the preservation, transportation, processing and shipping of agricultural products."

An exceptional role is being given to the basic link of the agro-industrial complex of the village--the grain industry. In the report to the CPSU Central Committee at the 26th party congress, Comrade L. I. Brezhnev emphasized that the "Basic Directions of Economic and Social Development" call for an average annual increase of grain production up to 238-243 million tons during the 11th Five-Year Plan.

The present levels of economic development place great demands on the grain industry. This is primarily based on the fact that at the present time over 95 percent of the country's population is supplied with grain from central resources as compared with 51 percent in 1950 and 74 percent in 1960. In addition, the country needs grain of a particular assortment and high quality capable of satisfying varying demand. The assortment of products using various types of flour now exceeds 740 types.

The growth of the material and cultural level of the population is accompanied by an improvement in the assortment of grain products used and by a drop in bread consumption. In 1978, for example, the consumption of bread and bread products decreased by 17 kilograms in comparison with 1965. At the same time the consumption of foodstuffs made from sifted, scoured and dressed flour of improved varieties increased by 21 percent, of first-quality wheat grain--by 14 percent, of high quality wheat flour--by 49 percent, of French loafs made from high quality wheat flour--by 18 percent and of milk-dough breads and buns--by 11 percent.

Flour goods can be improved constantly only if there are sufficient quantities of grain from different wheat varieties and other grain crops. With all of its excellent properties, wheat is inferior to rye, rice, buckwheat, millet, peas, beans and corn in a number of biological and industrial qualities. Consequently, in order to satisfy the demand of the Soviet people for foodstuffs it is essential to expand the production of various grain, groats and legume crops.

The USSR Academy of Medical Sciences recommends that for optimal nutrition in any category of the population 14 percent of calories in a ration should come from protein, 30 percent from fats and 56 percent from carbohydrates.



For this reason we must consider the fact that the amount of protein found in grain is insufficient for the consideration of grain products as balanced food. The ratio of carbohydrates to proteins is 8:1 whereas according to the rules of efficient nutrition it should be 4:1. An objective shortcoming of grain as a foodstuff is the incompleteness of its protein complex. Compared to animal protein it contains little lysine, methionine, leucine, valine and in some cases threonine and tryptophan. This makes it necessary to change the structure of rations by significantly increasing the proportion of meat, milk and eggs.

The growth of livestock products in the rations of the population requires a high pace of development of livestock raising. Here the grain industry becomes very important, as does the increase in production of grain forage and legume crops. The products of the grain industry (seed, straw) comprise 40-45 percent of the total amount of feed consumed, including grain — 30-35 percent. Whereas to satisfy the consumer needs of the population for grain and grain products 54-55 million tons per year are needed, for livestock raising at the present time 114-118 million tons per year are utilized. It is clear that when the consumption of livestock products increases the consumption of grain products per person in the population will decrease and the production of grain forage crops used as livestock feed will increase considerably.

A resolution of the July 1978 Plenum of the CPSU Central Committee foresees the production of 1 ton of grain per person by 1990. Let us present some data on the types of grain needs per person in the population.

The type of demand for grain per person in the population, kilograms:

Nutrition and industrial processing	158
Seed	127
Feed	600
Other expenditures	115

Judging from this data, about 45 percent of all grain needs in the future will be directed toward nutrition, seeds, exports and the development of reserve funds. Over half the grain will be used to satisfy the need of livestock raising for feed.

The present structure of grain production is undergoing certain changes in the area of increasing the proportion of grain forage crops, but it still does not meet today's needs by far.

Today the grain fields occupy somewhat less than 128 million hectares; thus they are a little larger than last year's. The area in barley has increased by 3.4 million hectares. in corn for grain—by 1.5 million, in legumes—by 1.3 million, in oats—by 220 000 and in soy—by 200,000 hectares. This year farms will find it possible to significantly increase their harvests and the gross yield of grain, including forage.

Considering that the demand for forage grain is increasing much more rapidly than that for foodstuffs grain in the future it is essential to improve the structure of grain production by increasing the proportion of the most productive grain-forage crops and by developing the agrotechnology necessary.

In connection with this the enterprises of the Non-Chernozem Zone of the RSFSR have made noteworthy changes in the structure of grain crops. The proportion of grain-forage crops here has increased. Last year, for example, 42 percent of all grains, legumes and groats crops were barley and 20 percent were oats. A sharp increase in grain forage crops requires a more careful attitude toward them because average productivity and gross grain yield in the zone depend to a large degree on the level of productivity of barley and oats.

It would be a mistake to think that in coming years the reasons for different levels of grain productivity in the Non-Chernozem Zone will be fully eliminated. Even when the general quality of farming improves differences will remain because of different soil-climatic conditions, and primarily soil fertility.

This circumstance is not considered sufficiently when solutions for some agronomical questions are sought. Let us take the structure of the variety composition of grain crops as an example. It is quite apparent that an enterprise whose threshing level is 30-40 quintals of grain per hectare will find intensive varieties more useful. Kolkhozes and sovkhoses with a productivity of up to 15-20 quintals can use varieties that are less demanding of cultivation conditions. A differential approach is therefore needed in the selection of varieties.

It is a cherished dream of grain farmers to produce two ears where one grows now and this dream does not die with time and will never lose its urgency.

Together with the scientist-chemist and breeder, the farmer views his goal as that of significantly surpassing the achieved level of productivity. This fully meets the growing needs of our society. The newest research and the experience of the best enterprises demonstrate that the possibilities for increasing the productivity of grain crops have by far not been exhausted. In all of the zones of the country there are many examples of active creative work with the land, of the effective use of possibilities to produce large and stable harvests with any kind of weather. Last fall the leading enterprises of Khar'kovskaya Oblast, for example, threshed 35-42 quintals of grain per hectare, whereas 47 kolkhozes and sovkhoses produced fewer than 20 quintals. In other words, one out of seven enterprises produced 1 ton less of grain than the average in the oblast. We cannot continue to be indifferent to the fact that under identical conditions some enterprises produce large and stable harvests and others produce small ones. The reasons for the lags lie not in the unpredictability of weather, which is the usual complaint of some directors and specialists, but in poor work with land, agrotechnical violations and an underevaluation of progressive methods of labor organization and production technology.

The material base which became stronger during the years of the 10th Five-Year Plan, together with progressive technology and effective measures of material stimulation must become the key factors in successful work to improve production quality.

A good example of this is the production of high-quality wheat in the Kuban'. There was a time when some directors and specialists in the kray felt that it was impossible to cultivate glassy grain with an increased gluten content of the first group. A "scientific" basis was presented for this "theory": the formation of a large amount of protein in wheat was dependent on precipitation, rich chernozem and... large harvests.

What actually happened?

When following the decision of the party kray committee and executive committee all directors and specialists without exception from rayons involved in agriculture studied the experience of kolkhozes and sovkhoses in this region and learned to wash off the gluten themselves, the skepticism disappeared like smoke.

But before this happened many days and many weeks passed. Experience was examined most scrupulously in schools and courses and was propogandized in print, on the radio and by agitators. Of course, there were radical changes in the technology of cultivating winter wheat. It began to be sown after the best predecessors and strong varieties were used--Bezostaya-1, Krasnodarskaya-46 and Krasnodarskaya-39. It became mandatory to provide liquid top-dressing with nitrogen fertilizers in May or June, to treat crops against pests, to select samples to test grain quality on the eve of the harvest and from threshing floors, to store grain harvested from different fields in different units, etc.

These measures immediately had an effect on grain quality and on the effectiveness of all grain production.

Already in 1981 it is necessary to increase areas in new highly productive grain crops to 44-45 million tons and to give special attention (following the experience of Krasnodar, Dnepropetrovsk and Kazakhstan) to increasing the production of grain of strong and hard wheats.

An important reserve for increasing grain production is the improvement of grain fields.

With this aim it would be expedient to expand the area in corn for grain and in soy in Moldavia, the southern oblasts of the Ukraine, the Northern Caucasus, Central Asia and the Transcaucasus; in grain forage crops in the Non-Chernozem Zone of the RSFSR, the Belorussian SSR, the Baltic States and Siberia.

As indicated at the 26th CPSU Congress, the time has come to actively begin a planned transition, with a consideration of natural-economic conditions, to a more efficient structure in the grain field.

The extensive goals in grain production planned for the 11th Five-Year Plan require an increase in the capacities of grain-reception and processing enterprises. In a speech to the 26th party congress Comrade L. I. Brezhnev emphasized the necessity of further strengthening the base for the storage and processing of agricultural products.

In the last 15 years the capacities of grain storage facilities in the country almost doubled. Moreover, priority was given to the erection of elevators equipped with the newest means of mechanizing and automating production processes and to the development of a powerful drying, grain-cleaning and weighing industry. Suffice it to say that during this period elevator capacities increased fivefold and 476 new elevators were constructed and put into operation. Their proportion in total grain-storage capacities almost tripled.



The 10th Five-Year Plan can rightfully be called the five-year plan of innovation and technical progress in the development of branches related to the procurement, storage and processing of grain. Special attention was concentrated on elevator construction. Variants for various methods of constructing structures were studied and experimental construction was realized on a large scale.

For example, in Kuybyshev at the Number 1 Flour Plant an experimental elevator with a capacity of 30,000 tons constructed monolithically from keramsit concrete has been put into operation. For the first time in solid elevator construction frame reinforcement was utilized. Incidentally, this design can be utilized in the construction of grain storage facilities in kolkhozes and sovkhozes. The multi-sectioned silos enable us to store forage grain and seed from various grain and industrial crops and grasses in a single unit.

During the current five-year plan an extensive construction program must be completed. It is planned to put into operation grain elevators with a total capacity of 20 million tons. Most of them will be placed in the main zones of industrial grain production--the grain regions of the RSFSR, the Ukraine and Kazakhstan.

During the 11th Five-Year Plan the productivity of the grain-drying industry will increase by 35,000 tons per hour. It will grow by the same amount in the subsequent five-year plan as well.

Complex highly-productive equipment will be used to construct new flour plants in almost all union republics, primarily in large cities and industrial centers of the nation. The introduction into operation of these mills, the rapid assimilation of their capacities together with existing enterprises will enable us to practically double the proportion of high quality flour produced and used.

A single program of development for the mixed-fodder industry during the 11th Five-Year Plan and to 1990 has been worked out with a consideration of the continued growth of the number of livestock and fowl and of an increase in the production of milk and in the productivity of all public livestock raising. During the current five-year plan it is planned to construct and operate 90 mixed-fodder plants. This will be an important factor in the effective use of grain that is earmarked as feed for animals and birds because the use of mixed-fodder instead of pure grain enables farmers to increase the production output of animal products by 20-30 percent.

The realization of a broad program in the areas of grain production, procurement, storage and processing and an increase in production and improvement in quality of grain products and mixed fodder will be an important contribution to the development of the agro-industrial complex and will encourage an improvement in the foodstuffs supplies in this country.

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## AGRICULTURAL MACHINERY AND EQUIPMENT

### ALL-UNION TECHNICAL SERVICE CONFERENCE

#### Agricultural Officials Participate

Moscow SEL'SKAYA ZHIZN' in Russian 13 Jun 81 p 2

[Article: "Concern for Equipment"]

[Text] An all-union seminar-conference for agricultural production engineers, organized by the USSR Ministry of Agriculture, convened in the city of Barnaul. The deputy ministers of agriculture and the chairmen of Goskomsel'khoztekhnika organizations of the union republics, ministry and departmental executives and the representatives of scientific institutes throughout the country participated in the work of the conference. The tasks of the agricultural engineering-technical service, in light of the decisions handed down during the 26th CPSU Congress, were examined.

Those who participated in the conference visited the Barnaul'skiy Sovkhoz where they acquainted themselves with the experience accumulated in organizing the engineering-technical service.

#### Technical Progress, Problems Aired

Moscow SEL'SKAYA ZHIZN' in Russian 20 Jun 81 p 2

[Article by A. Torichko, Altayskiy Kray: "For the Machines To Operate at Maximum Capability"]

[Text] Recently, workers attached to the engineering-technical service for the rural areas attended an all-union seminar-conference held in Barnaul. The Altayskiy Kray is the largest grain area in the eastern part of the country and it has its own labor traditions and farming experience. The 1st Secretary of the Altayskiy Kray Party Committee, N.P. Aksenov, upon welcoming his guests, noted that it was on Altay land that the first tractor in Siberia laid out a collective furrow. Thereafter, a historic era began in the Kulunda steppe region in connection with the mastering of the virgin lands, as a result of which the area of arable land in the kray was increased by 3 million hectares and now numbers some 7.3 million hectares.

The following items of equipment are being operated today out on the Altay fields: approximately 50,000 tractors of various types, 25,000 grain harvesting and more

than 10,000 specialized combines, in excess of 20,000 trucks and tens of thousands of soil cultivation, sowing and feed procurement machines and implements. There are approximately 100,000 machine operators in the kray, with 68 percent of their number being 1st or 2d class specialists.

In delivering his report to the conference entitled "The Tasks of the Agricultural Engineering-Technical Service In Light of the Decisions Handed Down During the 26th CPSU Congress," the Deputy Minister of Agriculture for the USSR, N.A. Stolbushkin, directed the attention of those in attendance towards the positive experience accumulated by many kolkhoses, sovkhoses and krayseel'khoshtekhnika organizations throughout the kray. A search is constantly underway here for methods for raising the productivity of the machine-tractor pool and for new organizational forms for utilizing it.

During the past autumn, for example, more than 1,500 harvesting-transport complexes were in operation out on the farm fields. A like number of sowing complexes participated this year in the spring field work. Greater efficiency was achieved as a result of the dispatcher service and more extensive use of technical servicing teams made it possible to shorten the schedules for carrying out the spring sowing by 3, feed procurements -- by 10 and the harvesting of the crops -- by 8 days.

After initiating an all-union socialist competition for the timely and high quality preparation of equipment for field operations during the first year of the Eleventh Five-Year Plan, the Altay machine operators carried out a major reorganization of their work. In collaboration with repair workers of Krayseel'khoshtekhnika, they repaired all of the grain combines during the winter. Repair work was carried out on a greater number of tractors, motor vehicles and feed procurement equipment than has been the case in past years.

An all-union movement has originated in Altayskiy Kray for the machine operators to realize economies in their use of fuel and other resources for the repair of equipment. Approximately 3 million rubles are being saved annually. The watch-standing method of operation by mechanized teams and also by teams which work on the basis of a single order is being introduced into operations on a more extensive scale. Cooperation in the joint utilization of the machine-tractor pool has produced fine results. During last year's harvest, for example, the daily output per combine at interenterprise associations increased by almost 20 percent. A decrease took place in expenditures for equipment maintenance and considerable savings were realized in the use of petroleum products.

Those who participated in the seminar-conference cited many positive examples with regard to the organization of repair work and the operation and storage of agricultural equipment in many republics and oblasts throughout the country. But the principal attention was focused on eliminating those shortcomings and mistakes which are still being noted in the work of the agricultural engineering-technical service. It was mentioned, for example, that the output of a standard tractor in the Azerbaijan, Turkmen and Georgian SSR's is still increasing only slowly.

At kolkhoses and sovkhoses in the Russian Federation alone, up to 9,000 Kirovets tractors are lying idle annually owing to a poor supply of spare parts. Owing to low quality repair work, a large number of combines do not participate in the annual

harvest operations. The accounting for and storage of machines is poorly organized and this leads to overexpenditures of resources for repair work and to the premature writing off of equipment. Such abuses are quite common on certain farms in the Ukraine and Belorussia.

Whereas in Altayskiy Kray 99.8 percent of the grain harvesting combines have been moved up to the readiness line, in Novosibirskaya Oblast only 84 percent and in Orenburgskaya Oblast -- just slightly more than 60 percent. Throughout the country as a whole, 166,000 harvesters, more than 130,000 grain combines, 25 percent of the potato harvesting combines and one third of the silage harvesting machines were not prepared for operations.

One of the causes -- failure of the repair base in the rural areas to keep pace with the modern requirements. Many kolkhoz and sovkhos repair workshops have not been supplied with the required equipment. Unfortunately, the USSR Ministry of Agriculture and USSR Goskomsel'khoshtekhnika are not displaying adequate concern for equipping the workshops.

"The problem of supplying the farms with heavy duty motor vehicle scales and powerful grain loaders for work on the thrashing floors must also be solved more rapidly" emphasized the Deputy Minister of Agriculture for the Kazakh SSR, A.K. Tomashets, during his speech, "The republic, which grows grain crops on 17 million hectares, requires wide-swath units and other items of highly productive equipment."

During the conference, a great amount of attention was devoted to those problems concerned with all-round mechanization, technical services for animal husbandry and improvements in the housing and socio-domestic conditions for machine operators and for all workers in the agricultural engineering-technical service. The Altay guests visited the Barnaul'skiy Sovkhos, the departments of the Pavlovskiy Rayon Sel'khoshtekhnika and a local repair plant, where they acquainted themselves with the experience accumulated in organizing the repair of machines, the restoration of units and parts, the storage of equipment and preparations for harvesting the crops.

A decision handed down during the all-union seminar-conference outlined specific methods for further improving the agricultural engineering-technical service in light of the decisions handed down during the 26th CPSU Congress. Measures have been developed for accelerating the preparation of the equipment for the forthcoming harvest and for providing high quality technical services in behalf of the 1981 harvest.

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## AGRICULTURAL MACHINERY AND EQUIPMENT

UDC 631.17+63.009.11(103)

### MACHINE SYSTEM FOR MECHANIZATION OF AGRICULTURE, FORESTRY

Moscow MEZHODUNARODNIY SEL'SKOKHOZYAYSTVENNIY ZHURNAL in Russian No 3, 1981 pp 13-17

[Article by S. Stefanov, engineer and expert attached to CEMA Secretariat: "New Stage in Improving the International System of Machines for the Complex Mechanization of Agriculture and Forestry"]

[Text] For the purpose of intensifying and improving collaboration among the CEMA member states in the field of mechanization, an international system of machines for the complex mechanization of agriculture and forestry was jointly developed by specialists of these countries.

This became possible after the CEMA Permanent Committee for Collaboration in the Field of Agriculture had adopted recommendations by the Socialist Bloc countries for the introduction of technologies for the industrial production of goods in animal husbandry, for the harvesting of grasses for hay, for obtaining hay meal and for the production of mixed feed. It also approved recommendations for the optimum width of inter-row spacings in the cultivation of the principal agricultural crops, depending upon the natural conditions and using a progressive technique. The mentioned recommendations created conditions for the introduction into operations, in the CEMA member states, of identical technologies for growing crops and maintaining animals, as a result of which the prerequisites appeared for utilizing common resources for the mechanization and automation of the production processes.

The purpose of the MSM [mezhdunarodnaya sistema mashin; international system of machines] is to promote joint measures among the CEMA member states in the fields of agriculture, forestry and machine building and in connection with the following spheres of activity: a) the introduction and development of complex mechanization in agriculture and forestry; b) the coordination of scientific research work in the mechanization of agriculture and forestry on the basis of coordinated requirements; c) the carrying out of experimental-design work aimed at creating agricultural machines and organizing international collaboration in the sphere of specialization in the production of tractors and agricultural and forestry machines; d) the carrying out of work in connection with unification and standardization in the fields of machine building, agriculture and forestry.

The content of the MSM is constantly being improved. The initial MSM (1961) appeared as a systematized list (or catalog) of the best machines available. The term "International System of Machines" corresponds fully to the content, since the



materials truly reflect the agricultural and forestry machines which exist in the CEMA member states, with their marks and principal indicators being furnished. It was obvious that this system still did not fully meet all of the goals mentioned above. In particular, it did not furnish much assistance to the designers, since it only contained indicators for machines which were available.

With the creation of the second MSM (1965), the decision was made not to include the marks for the technical equipment in the document, but rather to focus attention on developing the agricultural, zoological and forest technology requirements for the machines. Thus the second MSM was more exact and useful for practical work and for collaboration in this sphere by the CEMA member states. Despite this fact however, certain shortcomings from the first system found their way into the second MSM. Although the marks of the machines were no longer pointed out, nevertheless the indicators for a large number of the agricultural requirements reflected data for machines existing in these countries. The fixed indicators for the existing machines did not promote the creation of a new or an improvement in the existing agricultural and forestry technology.

In 1971, in conformity with the complex program for further intensification and improvement of collaboration and the development of socialist economic integration and taking into account all of the shortcomings enumerated above, a basically new and long-term International System of Machines was developed. This new system made it possible for the CEMA member states to concentrate their efforts on the introduction and development of complex mechanization for agriculture and forestry, through the coordination of scientific-research and experimental-design work and based upon coordinated and long-term technological, agricultural, zoological and wood technology requirements. All of this promoted an expansion and intensification of international collaboration in the sphere of specialization and cooperation in the production of tractors, and agricultural and forestry machines.

The MSM developed in 1971 differed substantially from the previous systems in that it took into account the long-range trends for the development of mechanization, in the interest of ensuring steady growth in the production of agricultural and food products, thus meeting the principal conditions of the complex program.

The rapid development of agriculture in the CEMA member states during the past few years, specialization and concentration of agricultural production based upon complex mechanization of the principal technological processes, the increase in the cropping power of the crops and in the productivity of the animals and especially the conversion of agriculture over to industrial production methods, with extensive use being made of electric power, automation and cybernetics, all served as the basis for the decision to revise and improve the MSM.

At the 43d Session of the CEMA Permanent Committee on Collaboration in the Field of Agriculture, methodological and organizational measures were approved for implementing improvements in individual portions of the MSM by stages. Nine sessions were held for temporary working groups for the purpose of examining and improving these portions. In the process, consideration was given to the latest available data in the sphere of scientific-research and experimental-design work by the CEMA member states and also to international achievements in technology and in the mechanization of agricultural production processes.

In revising and improving the MSM, the specialists strove not to be satisfied with the level of agricultural practice already achieved at the present time. Instead, they chose to "glance ahead" taking into account the time expended by machine building for the development of new machines and their introduction into series production.

All of this work has already been completed. At the 39th Session of the Permanent Working Group on Mechanization (October 1980), agreement was finally reached on a list of requirements and the country's requirements for all machine modifications and type sizes and these materials were approved during the 53d Session of the CEMA Permanent Committee for Collaboration in the Field of Agriculture (December 1980).

The new and improved system includes considerably more specialized machines and items of equipment for ensuring complex mechanization and the conversion over to industrial methods for producing goods. The nomenclature of machines of interest to several CEMA member states has been increased. Thus, whereas the first MSM (1961) included 1,103 type sizes, the second system (1965) -- 1,113, the third (1971) -- 1,746; in the new system, approved by the Committee in 1980, there are 2,446 type sizes of machines and equipment.

What are the principal changes that have been introduced into the new and improved system of machines? First of all, the specialists attempted to include in it new equipment requirements, the introduction of which would increase labor productivity, improve the quality of mechanized operations, decrease the consumption of power per unit of work and improve the working conditions of the machine operators.

In addition, three new parts have been included in the new MSM: 31 -- "Mixed Feed Production"; 32 -- "Production of Meat and Bone and Blood Meal" and 87 -- "Machines and Equipment for Carrying Out Veterinary Measures" and also requirements for more than 500 new machines, which will be introduced into agricultural production for the mechanization of labor consuming processes or for replacing obsolete equipment.

In the field of tractor production (Part 81), the new MSM, similar to the former system, calls for nine basic models. The tractive class 4 ton-force tractor was eliminated from the old system and a new tractive class 8 ton-force tractor added. The number of tractor modifications was increased from 30 to 43. The mentioned changes reflect a trend on the part of the users of the agricultural and forestry equipment to achieve completion of complex mechanization, through the use of more efficient specialized tractors, created on the basis of standardization with the basic models.

The increasing capability of the tractors is promoting improvements in labor productivity. Various types of tractors are being created: powerful general purpose tractors and multi-purpose row-crop class 2 ton-force tractors with a power rating of 110 kilowatts, general purpose class 5 ton-force caterpillar tractors with a power rating of 220 kilowatts and general purpose class 8 ton-force wheeled tractors having a power rating of no less than 370 kilowatts.

The high powered tractors will have a more developed function as a mobile source of power for ganging with machines required for raising productivity and for increasing the power input substantially with no significant increase in tractive effort.

As a result of raising the capability of each tractive class and increasing the production of tractors in the higher tractive classes, considerable growth will be realized in the average capability of these machines.

In the case of agricultural and forestry transport operations (Part 83), the new MSM calls for 133 types of machines, or three more than the number called for in the previous system.

The changes made in this part of the system call for substantial growth in the carrying capacities of the transport equipment and in their technical development, in the interest of creating greater comfort for the driver and improved labor productivity.

So-called transport-technological vehicles continue to hold great promise for the future -- specialized trucks which are fully adapted for work in agricultural production and which can carry out not only all types of transport operations but also, after they have been equipped with removable bodies and specialized equipment, a number of technological operations, such as applying all types of fertilizers, toxic chemicals and so forth.

Use will also be made of tractors pulling trailers and semi-trailers. The plans call for the use of highly productive loaders, with devices for introducing and employing a container system in agriculture.

Many changes are to take place in the mechanization of grain, pulse and oil-producing crops (Part 11). Compared to the previous MSM, the number of machine types has increased from 89 to 106.

The plans call for the production of a new multi-purpose grain harvesting combine having a capability of 14 kilograms per second or higher for a grain to straw ratio of 1:1, including a stepp slope modification with a capability of 7 kilograms per second. Such a combine will be used for harvesting grain crops, corn for grain, pulse and oil-producing crops, seed plants for grasses and so forth.

In addition, the plans call for the production of a new self-propelled corn harvesting combine having a productivity in the harvesting of ears of 15 kilograms per second and leaf and stalk bulk -- 20-22 kilograms per second; a thrashing machine for thrashing the ears; a pneumatic wide-row seed drill and so forth.

The harvesting of grain and pulse crops will be carried out using both direct combining and the two-phase method; mowing into windrows for drying out, with subsequent pick-up and thrashing.

More extensive use will be made of the windrow technology for harvesting straw, with use being made of various pick-up balers for obtaining rolls, accumulator-field wagons for transporting them and special stackers adapted for placing the rolls in ricks.

For the principal soil cultivation operations (Part 84), the new MSM calls for 65 types of machines, 19 more than the previous MSM. Included in this part are: a cultivator for deep loosening (chisel); a machine for the deep loosening of soil; a sweeper-harrow and others.



The Basic Directions in the area of plow development and construction calls for the creation of wide-cut plows for work with powerful tractors, plows which will ensure high quality plowing and raised productivity for the plowing units.

Extensive use will be made of deep loosening cultivators for non-mouldboard plowing to a depth of up to 40 centimeters, wide-cut disk harrows and cultivators and for the pre-sowing preparation of heavy textured soils and soil which has become muddy following watering -- cultivators with active working organs and deep loosening cultivators.

Substantial changes will take place in the mechanization of fertilizer applications (Part 85). In this part of the new MSM, the number of machine types has reached 54, that is, six more than the number for the old system. Compared to the old MSM, the new MSM calls for 15 more types of plant protection machines (Part 86).

Despite the fact that biological protection will undergo further development, the predominant role in the future will still be played by chemical protection measures. On the one hand, the new MSM calls for improvements in existing machines for carrying out the traditional technological processes and, on the other, the introduction of new equipment which differs substantially from the former equipment. Requirements have been developed for the new machines which call for an increase in productivity the creation of the best conditions for protecting labor and improvements in the accuracy of spraying and in the quality of the work. The plans call for an increase in the size of the tanks and this will also promote raised labor productivity.

For the purpose of protecting plants and in addition to tractor-mounted and towed machines, use will be made of special self-propelled units.

The technical equipment will serve to ensure the carrying out of an entire complex of operations concerned with the transporting, loading, unloading and application of fertilizers, with no expenditures of manual labor.

Spreaders installed on motor vehicles and trailers having a load capacity of up to 200 kH will be used for applying solid mineral fertilizers.

The plans also call for complex mechanization in the production of potatoes (Part 16). This will require the production of 55 types of machines. New requirement charts have been developed for a potato harvesting machine for small areas having a slope of up to  $10^0$ , for a combine for harvesting early potatoes, for units to be used for the chemical disinfection and cleaning of potatoes and other machines.

Further improvements in labor productivity will be achieved through the increased use of machines equipped with automation equipment for controlling and regulating the working processes.

The storage of potatoes will be carried out in special acclimatized storehouses.

For mechanization of the processes associated with the growing of sugar and fodder beets (Part 17), the plans call for the production of 64 types of machines (the old system included only 26).



All machines used for sowing, tending the plantations and harvesting the beets are gradually to be equipped with automation elements; this will make it possible to improve the quality of the work being carried out and it will lower the labor intensiveness of the equipment servicing operations. The sowing machines will be provided with equipment for automatic steering and automatic units for controlling the sowing work, the amount of seed in the hoppers, the operation of the nozzles during herbicide spraying and the action of the dosing devices when granulated insecticides are used.

The improved Part 17 of the system included such new machines as adapters for the strip placement of herbicides (during spraying) and granulated pesticides, a pick-up loader for root crops with a productivity of 2-4 hectares per hour, a combine for harvesting fodder beets with a productivity of up to 0.9 hectares per hour and so forth.

The problems concerned with the mechanization of production processes in vegetable growing on open ground (Part 19), horticulture (Part 22) and viniculture (Part 23) were further developed. The number of machine types in these parts increased from 203 in the former system to 224 in the new MSM.

The most important task in the mechanization of vegetable growing on open ground is the creation of highly efficient equipment for harvesting tomatoes (for industrial processing), peppers, cucumbers, leguminous beans, cabbage and onions and also equipment for the post-harvesting commercial treatment and processing of vegetables.

The cultivation of soil in orchards is to be carried out using plows with diverging sections. Special attention has been given to mechanizing the harvesting of fruit for consumption in fresh form.

The plans call for the extensive introduction of machines for the harvesting and transporting of grapes which will ensure good preservation for the table varieties and high quality raw materials for wine making.

For the harvesting of grapes to be used for processing, special harvesting machines will be introduced for mechanically picking the fruit with the aid of vibrating working organs.

A semi-mechanized harvesting technology will be employed for harvesting table grapes. Of the new machines called for in the mentioned parts of the new system, the following bear mentioning: a tomato harvesting combine with a productivity of 20 tons per hour; a twin-row machine for the harvesting of heart cabbage; a combine for harvesting cucumbers; highly productive machines for harvesting beans, green vetch, grapes, carrots and also a line for the post harvest processing of bulb onions, tomatoes, heart cabbage and others.

A great amount of attention was given to the production, storage and processing of feed. In addition to Part 15 -- Forage Crops -- the new MSM, as already mentioned, contains two new parts: 31 -- "Production of Mixed Feeds," which includes 94 types of machines, and 32 -- "Production of Meat and Bone and Blood Meal," which includes 51 types of various items of technical equipment.

The pool of silage harvesting combines is changing in the direction of an increase in the number of self-propelled machines. The new combines, in addition to having high productivities, must ensure the high quality mincing of all silage crops into small fractions. For completing these silage harvesting machines, the plans call for the production of special transport vehicles having large load-carrying capabilities.

In addition to other technologies, a progressive technology will be introduced for procuring feed using the method of artificial drying and briquetting on highly productive automated flow lines. The plans call for the production of equipment for mixed feed shops having proportion feeding and portion mixing, which will ensure the production on the farms of full-value and balanced mixed feeds.

The requirements for technical equipment for the production of meat and bone and blood meal are set forth in Part 32: equipment for the mechanical purification of blood; a meat and bone meal crusher; a blood dryer; equipment for the storage of meat and bone meal and others.

The principal task for scientific-technical progress in land reclamation is that of raising labor productivity in the construction and operation of land reclamation systems and realizing improvements in the use of special and other types of equipment. These problems were taken into account when improving Part 71 of the new MSM, which includes 179 types of machines, including such new items of equipment as a trench digger, drain layer for frozen ground, a frontal action sprinkling machine with electric drive and others.

The introduction of new and improved machines will make it possible, in the construction of closed drainage, to ensure continuity in the technological process for the digging of trenches with the required slope and for the laying of pipe and covering them over. The non-trench method of construction, with automatic maintenance of the slope of the installed pipes, will undergo further development.

Great attention will be given in this part to the development of equipment for watering the agricultural crops, with use being made of automation equipment for the varying natural and economic conditions.

New machines for sprinkling and technical equipment for highly productive irrigation, using the surface method and automation of water distribution, and also for subterranean irrigation will be created.

In improving the International System of Machines, the problems concerned with the mechanization of technological processes in animal husbandry were thoroughly developed.

For the mechanization of operations on large-horned cattle farms (Part 41), the number of machine types increased from 77 to 82.

For the most part, the feed distribution problems were solved. Towards this end, mobile and stationary feed distributors were called for: tractor and self-propelled, for milking units having mixed feed hatches.

Industrial technologies for the maintenance of calves and the requirements for equipment used for this purpose were developed: units for the preparation of liquid feed, mobile and stationary (feed line) automatic feed distributors, drinking bowls with water heaters and so forth.

The plans call for two types of milking units -- for milking in stalls and circular conveyer units, in which elements of automation and program control are introduced.

For the harvesting, transporting and processing of farmyard manure, use will be made mainly of existing machines and equipment, but they will be improved considerably, especially from the standpoint of reliability and work quality.

In swine raising (Part 42), the number of machine types increased by 16 compared to the previous MSM and reached 46.

Here the plans call for the extensive introduction of mechanization for the feeding of dry feed mixtures and granulated and non-granulated feeds, using individual or group batchers for all categories of swine.

The transporting and distribution of damp feed having a crumbly structure will be carried out using mobile or stationary feed lines.

For the watering of the animals, the plans call for the use of automatic watering bowls, of the valve and non-valve types, for both young pigs and adult animals.

The intra-farm transporting of various types of freight will be carried out using special containers and also a central closed line of communication.

The cleaning and disinfection of equipment and facilities will be carried out using special mobile equipment for supplying a hot disinfecting solution under pressure.

Equipment will be introduced for gathering up and using excrement, thus making it possible to ensure reliable protection of the environment.

For the mechanization of poultry raising (Part 44), the number of machine types in the improved MSM has been raised to 92, or 15 more than the number in the previous system. Here the plans call for the use of multi-level, single-level and cascade batteries of cages for the raising of young stock and the maintenance of laying hens.

All of the principal processes involved in cage maintenance will be mechanized and the plans also call for mechanizing the processes concerned with the perching and handling of the poultry and the processing of the eggs.

The level of mechanization in sheep raising is still lagging behind that for the other branches of animal husbandry. In the improved MSM (Part 43), 34 types of machines have been included, or 13 more compared to the previous system. The extensive use of the system of machines is inhibited here mainly owing to the fact that the existing logistical base is unsuitable for the introduction of mechanized technologies.

For the preparation of feed and distributing it at sheep raising farms and in addition to general farm machines, the plans also call for the use of special

equipment. Individual and group automatic watering bowls will be employed for the watering of the sheep. It is recommended that the milking of sheep be carried out using stationary milking units, which can be installed in a milking parlour or in the facilities in which the animals are maintained. It is recommended that mobile milking units be employed out on the pastures.

A special unit will be used for gathering up the packed manure from the sheep pens and other areas. In addition, just as in the past, multi-purpose bulldozers, bucket loaders and other items of technical equipment will be used for this purpose. The plans call for the use of washing units, tubs and showers for the prophylactic treatment of the sheep using various disinfecting solutions and emulsions.

The improved MSM represents a new stage in raising the level of mechanization in agricultural production and in improving the quality of execution of the technological processes.

In the interest of meeting the agricultural requirements for machines and equipment, for use in mechanizing particularly laborious processes, the plans call for the implementation in the near future of a coordinated complex of specific measures, based upon collaboration among the CEMA member states, in the field of agricultural machine building. In the process, the joint efforts will be concentrated on specialization and cooperation in the production of agricultural machines, in order to eliminate the bottlenecks in the complex technological lines used for mechanizing the production processes associated with the growing of the principal agricultural crops and the production of animal husbandry products, while taking into account the soil climatic and natural conditions, the cropping power and varietal characteristics of the crops and the pedigree structure and productivity of the animals.

The international division of labor called for among the CEMA member states, when collaborating in the field of agricultural machine building, will make it possible not only to realize economies in the use of resources and reduce the time required for creating new agricultural machines and organize their production, but in addition it will ensure the effective utilization of international experience and, on this basis, the creation of new items of technical equipment having high technical-economic parameters.

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CSO: 1824/335



## AGRICULTURAL MACHINERY AND EQUIPMENT

### COMMENTARY ON NEED FOR SMALL AGRICULTURAL MACHINERY

Moscow PRAVDA in Russian 4 May 81 p 3

[Article by D. Novoplyanskiy: "Concerning Uncut Grasses"]

[Excerpt] This is the first time that the coming harvest has resulted in so many agitated letters to PRAVDA. Referring to the materials of the party congress, to its decisions, readers are writing about the need to fully utilize every square meter of land. Our country is rich and one of its main treasures is land. Gigantic plowed fields are visible from outer space. The areas that are not in plowland are 10 times greater. Natural feed lands cover hundreds of millions of hectares. Each square meter must produce feed.

The authors of the letters feel that small-scale equipment in private economies, and in particular a manual mower, would help to accustom young people to farming. It is true that the country is immense and that conditions vary everywhere, but voluntary designers have been found in Georgia, in the Komi ASSR and in Primorskiy Kray--motor-driven mowers are needed everywhere. They are need by young people as well as old. They are needed by rural residents as well as urban dwellers who have plots of land. They are needed by kolkhoses and sovkhoses in order to cut natural grasses in places which regular units cannot reach. Millions of people are awaiting them. They are waiting to more fully utilize one of the most magnificent riches given to us by nature.

Now let us turn to the ministry of tractor and agricultural machine construction and to the ministry of machine construction for livestock raising and feed production. Each year they supply villages with first-class machinery worth billions of rubles. How could it happen that an inexpensive mini-mower could become a problem? After all, it has been worked on for a long time. Mass production was promised in 1978. What happened? Within the ministry of machine construction for livestock raising the Soyuzkormmash [All-union feed machinery] production association is in charge of mowers. In Soyuzkormmash it was suggested that I go to a plant in Lyubertsy near Moscow. "There is no story sadder than that of the manual mower," said the director of the Lyuberetskoye Association on Machine Production for Hay Procurement, V. Levitskiy, former senior engineer of Soyuzkormmash. He introduced me to the director of the main SKB [Special design bureau], G. Yelkin, who knew the history of the mower in detail.

Fifteen years ago here in Lyubertsy the KKM-1 manual mower, motorized and encompassing 1 meter, was developed. It successfully passed state testing and in 1968 everything was ready for mass production. Since that time spring has come many times, the grasses kept growing, but the manual mower kept waiting its turn. It never came. The years of work and the spent resources were in vain; the designing, testing and readying of the innovation for production were also in vain. During the 1970's a new model appeared. It was more convenient and moved on two wheels instead of one. It was developed by VISHKON [All-Union Order of the Red Banner Scientific Research Institute of Agricultural Machine Construction imeni V. P. Goryachkin] and by the main SFB on orchard and garden instruments of Minsel'mash. The name KMP-1.0 means a motorized pedestrian mower with a spread of 1 meter. In 1977 it was put into production following interdepartmental testing. By doing this elementary order was violated because the machine did not undergo state testing. This was begun unforgivably late, when the Klimovskiy Plant of the Lyuberetskoye Association began to manufacture the KMP-1.0 and complaints began to pour in. Three state machine-testing stations came to the same conclusion--it is a bad mower and should not be manufactured. Departmental battles and mutual rebukes began. The designers blamed the manufacturers. Plant workers cursed the designers, who sent them a "pig poke," and gradually redesigned the cutting apparatus, the reduction gear and detail after detail. Time was passing. Three years were lost, we are told in Minzhivmash.

It was planned to manufacture this same mower in the plants of Minsel'mash. According to the orders of the ministry, the plants of Lidasel'mash [Lida agricultural machinery construction association] and of the Kherson combine were to manufacture 1,000 mowers in 1978. Not a single one was manufactured. The new director of technical management in the ministry, I. Ksenevich, said that it was decided to give the project over to the Kursk Plant of Tractor Spare Parts and that production there would not begin before 1982. This year there would be additional design improvements and more testing. But Minzhivmash's plant was able to complete the design and the final variant passed state tests and already today it is planned to manufacture 3,000 mowers. This is not known in Minsel'mash. It becomes clear that each ministry works on its own mini-technology without showing interest in the successes of its neighbors. Thus the details of the KMP-1.0 are being worked out differently by different ministries. Neither quality nor time are the winners here.

How can all of this be explained? Why are there lags, as if by purpose, in the production of a simple and inexpensive machine in the enterprises of various ministries? Here is the reason. The manual mower is too small, its cost is too little and its proportion in total production volume is part of one percent. This "pedestrian" baby does not bring large profits or fame, just worries. This type of production is not making inroads in the association and if possible production is delayed a half year or a year. In other words, the mini-technology here is exhibiting only mini-interest, and this is the sister of mini-responsibility.

It is true that ministries and associations admit that it is time to change the attitude toward the production of small machinery. They have already begun to alter the operations of some shops and plants. But I feel that it is much more difficult to bring about a psychological change. For years there was a disrespectful attitude toward the requests of heads of private economies. Now, after the serious measures taken by the party, this has changed, but in some places this attitude remains, based on the assumption that the private enterprise is secondary and that one can deal with it slowly and without much effort.

Meanwhile, the private economy is a very important part of the economy although the public sector does play the decisive role. It produces more and more meat and milk, vegetables and potatoes. Why is it that until now, of the total number of machines being supplied to the village only the crumbs are left for the private economy? It is here that the story of the motorized mower is noteworthy. In the large family of modern machines it still remains the Cinderella. A minimal amount of attention is given to it. It is quite possible that its production will be assigned to the most distant shop.

This attitude is cause for alarm, especially since it is planned to produce other small machines such as small tractors and power units with a selection of machines and equipment. They were developed in the Moscow suburbs, in Minak, Kutais and other places. Who is being called upon to coordinate this work, to manage it, to make sure that the consumer receives the best mini-technology as soon as possible? Let us say that the KRS-0.85 manual mower, designed by the specialists of the Georgian Institute of Plant Protection, passes state tests with flying colors, who is responsible for its subsequent fate as well as for that of other interesting innovations? The Tbilisi plant, Gruzeel'mash [Georgian Agricultural Machinery Association], has begun preparing the first group of KRS-0.85 mowers, 10 of them. Again, this is a drop in the bucket. Right now various ministries and departments are responsible for the production of mini-technology and everywhere workers are sure that they are not guilty for the delays and problems. There are no guilty parties. Years pass before a good model of a small machine or a garden instrument is put into mass production and arrives at the agricultural store. Readers have a right to ask who is responsible for this. The writers of a collective letter from Tallinn perhaps too categorically believe that it is possible to establish a scientific-production association for the manufacture of small agricultural machinery. Perhaps a better organizational form will be found. It would be very helpful to concentrate technical policies here in a single place.

Finally, our mail informs us of home-made products. There are more and more of these. In Petrovskiy Sovkhoz of Omskaya Oblast alone private economies now have 40 small home-made tractors. The home-made machines are far from perfect, but what is to be done if the Omskaya Oblast consumers' cooperative expects to receive five mini-tractors this year to the sell to the population? This means five tractors for the entire oblast of 24 agricultural regions having 326 rural soviets.

In some oblasts, krais and republics kolkhos innovators are building mowers using engines for motorcycles, mopeds and the Drushba saw. Yuriy Panteleymonovich Opleenin, gas welder of the Vychegodskiy Ship Building and Repair Plant, made a gas mower with a boat motor. He receives letters and telegrams asking for the blueprints. What can you do if the promised power mower has been lost in the morass of departmental disputes, rebuttals and rebukes? Recently express messengers arrived in Moscow from Kalininskaya and Tul'skaya Oblast, asking for documentation for the manufacture of manual mowers in an attempt to organize production there. All of this convincingly demonstrates growing demand and the fact that mini-technology is needed by the village now, today. It is needed in order to better utilize natural feed lands, to keep the grasses cut in the outskirts of a village.

In the book, "Teelina" [Virgin Lands], L. I. Brezhnev relates how the virgin-lands farmers needed plows, which were not foreseen in time: "Measures were taken and one month later the first new plows were shipped to the virgin lands." It could not be otherwise since the virgin lands were given special attention. What was learned in the virgin lands could be utilized now and the needs of the village deserve special attention even today. I remember well those new plows that were developed in the course of 1 month. They are of approximately the same complexity as the power mower which has been in the works for 15 years. Although our agricultural machine construction ~~has~~ improved and become stronger, there is no comparison to what occurred during the first post-war decade.

It turns out that the essence of the problem is not in possibilities, because they exist, but in the very attitude toward the problem, in discipline and in responsibility. The essence lies in the need for machine construction to respond better and more efficiently to the immediate needs of the village, including the need for small machinery. This also involves a thorough change in attitude from top to bottom--from Gosplan to the plant.

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CSO: 1824/317



## TILLING AND CHOPPING TECHNOLOGY

### MEASURES FOR RAISING GRAIN PRODUCTION LEVEL IN RSFSR

Moscow *SEL'SKOYE KHOZYAYSTVO ROSSII* in Russian No 4, Apr 81 pp 28-31

[Article by A. Oendchuk, Deputy Chief of Main Administration of Grain Production and General Farming Problems of RSFSR Ministry of Agriculture: "Grain Production -- To the Level of New Tasks"]

[Excerpts] To raise the average annual grain yields during the current five-year plan to 238-243 million tons, and to increase the production and procurements of durum and strong wheat, grain forage crops, millet, buckwheat, rye, rice and corn -- such are the tasks which have been assigned to the agricultural workers by the 26th CPSU Congress. The kolkhozes and sovkhozes in the Russian Federation must play an important role in carrying out the plans as outlined. The average annual gross yield of grain in the republic must reach 134-136 million tons. This is roughly 20 million tons than were obtained during the 1976-1980 period.

The task is an important and complicated one and yet, beyond any doubt, it is realistic and attainable: goals the same as or similar to these have already been achieved for the grain economy of Russia during some years. In 1976, the gross yield of grain amounted to 127,059 tons and in 1978 -- 136,326 tons. The growth in production during the Tenth Five-Year Plan was achieved mainly as a result of having raised the cropping power of the grain fields. This was the direct result of consistent and planned intensification of the grain economy. Importance is also attached to the fact that the cropping power of the crops is constantly increasing. It reached 14.8 quintals per hectare during the Tenth Five-Year Plan. This was 1.1 quintals more than the figure for the 1971-1973 period. Moreover, many farms have reached considerably higher goals. What distinguishes the work being performed today by the best kolkhozes and sovkhozes?

First of all -- a scientific approach for farm management and a high level of work organization. For it is this factor which makes it possible, from year to year, to intensify the production of grain and to overcome more easily unfavorable weather conditions.

As is known, the principal cause of an unstable grain economy in the principal regions of commodity grain production is that of frequently recurring droughts. However, such droughts are not to be considered exceptional in nature. They have been, are and will continue to be typical features of the climate. And it is under such conditions that the kolkhozes and sovkhozes must successfully carry out their farming

operations. Altayskiy Kray, for example, is considered to be one such region. The grain fields here are the largest in Russia; they exceed 4.5 million hectares. And today there are many farms in the Altay region which have well developed systems for carrying out agrotechnical measures, systems which conform to their own local conditions. These measures are aimed at steadily raising the fertility of the soils.

Mineral fertilizers are being employed most effectively at the Rossiya Kolkhoz in Zmeinogorskiy Rayon (typical grain farm, with grain crops occupying more than 70 percent of the arable land) by applying them to the drill rows in the form of top dressings. Concern is being displayed at this farm for improving the organization of production operations. Instead of seven brigades, there are presently four departments here and conditions have been created for raising the labor productivity of the machine operators. All of this is making it possible to raise the cropping power in a stable manner and to increase the grain yields.

Leading farms are to be found today in all of the oblasts. Unfortunately however, their experience is not being disseminated as extensively as desired. Only 12-33 percent of the kolkhozes and sovkhoses in Russia obtained 20 or more quintals of grain per hectare during the 1976-1979 period. And from 12 to 27 percent of the farms obtained less than 8 quintals. It was precisely these backwards farms which accounted for the greatest volumes of unfinished agrotechnical operations, or work that was completed with violations of the schedules and scientific recommendations. Meanwhile, computations reveal: that the grain production volumes called for during this current five-year plan can be achieved, for the republic as a whole, merely by raising the cropping power by one half of the difference between the backward and leading farms. The overall effectiveness of farming is considerably higher in those areas where purposeful efforts are directed towards "raising" the backward farms to the average level and thereafter to the indicators for highly organized kolkhozes and sovkhoses. Grain production is being carried out in a stable manner. And vice versa as well.

During some years, more than 50 percent of the kolkhozes and sovkhoses in Novosibirskaya Oblast obtain less than 8 quintals of grain per hectare. And in the neighboring Omskaya Oblast -- the figure is one fourth to one third less, despite the fact that the soil-climatic conditions and the logistical equipping of the farms are roughly the same in both oblasts.

Meanwhile, the production indicators for the grain economy in these oblasts differed during the Tenth Five-Year Plan.

The differing results despite equal opportunities are explained by the fact that different approaches were employed for solving the agrotechnical problems. A scientifically sound system of farming has been developed in Omskaya Oblast and a majority of the farms are employing it. In Novosibirskaya Oblast, as already stated, a different picture prevails. This is readily apparent in the data describing the level of agricultural practices employed (see following three tables).

In addition, the farms in Omskaya Oblast are applying great volumes of lime to acid soils, gypsum to saline soils and they are making better use of their agricultural equipment. And although in recent years the difference in grain crop cropping power between the farms in both oblasts has begun to decrease, nevertheless the workers in

	Omskaya Oblast	Novosibirskaya Oblast
Agricultural lands, thousands of hectares	6,703	8,356
including arable land, thousands of hectares	4,357	3,003
arable land index of quality and yield, in balls	30	29
Amount of precipitation during growing season, in mm	259	264
Availability of tractors for 1,000 hectares of arable land, in number of units	6	7
Availability of grain harvesting combines per 1,000 hectares of grain crop sowings, in number of units	5.5	5.1
Mineral fertilizer deliveries per hectare of arable land, in quintals of standard mineral fertilizer (1980)	1.06	1.24

	Omskaya Oblast	Novosibirskaya Oblast
Arable land area in mastered crop rotation plans, in % of total amount of arable land (1980)	89.8	81.0
Availability of fallow, in % of arable land	14.5	10.9
Area of arable land cultivated by flat-cutting implements, thousands of hectares (1980)	835	500
Sowing with stubble field sowing machines, thousands of hectares (1980)	1,589	747
Windbreak strips created, thousands of hectares	207.4	54.3
Organic fertilizers applied to grain crops, tons per hectare of sowing (1979)	1.4	0.5
Proportion of high quality sowings in % of overall sowings (1980)	98.6	95.6

	Omskaya Oblast	Novosibirskaya Oblast
Average cropping power for grain crops, quintals per hectare	15	12.1
Cropping power according to plan for 1976-1980, quintals per hectare	15	14
Gross yield of grain crops, thousands of tons on the average for 1976-1980	3582.8	2764.7
Fulfillment of five-year plan, in %	99.7	85
Production cost per quintal of grain, in rubles, average for 1976-1979:		
at kolхозes	7.75	8.95
at sovkhoses	6.78	8.0

Novosibirskaya Oblast still have a great amount of work to carry out in order to raise the culture of farming and increase their use of the principal agrotechnical methods. This obviously requires an efficient program and one which takes into account the specific conditions. But whereas in Omskaya Oblast the system of farm



management was revised in 1960, in Novosibirskaya Oblast the farms are still being managed on the basis of 1966 principles. And certainly these principles do not take into account the present-day technical opportunities, the scientific achievements or the new forms for organizing labor.

The development of a modern and scientifically sound system of farming, one which takes into account the conditions of each region, rayon and even farm is a task of the scientific institutes and agricultural organs not just in Novosibirskaya Oblast. Indeed, today, in 29 krayes, oblasts and autonomous republics alone, the kolkhozes and sovkhoses have systems at their disposal which were developed especially for their territories. The remaining ones are guided by regional systems. But specific ones are required. This was the subject of a speech delivered before the All-Union Agronomic Conference. It was emphasized during this conference that maximum support should be provided for that farming system, for those crop rotation plans, for that crop structure and for those soil cultivation methods which, under the specific conditions, ensure that the best results will be obtained and that the state plans will be fulfilled in a stable manner.

One of the most vital and urgent tasks confronting the kolkhozes and sovkhoses today is that of mastering completely the scientifically sound crop rotation plans. And this is understandable: the soil cultivation systems, fertilizer applications, and the protection of crops against pests and diseases are directly associated with the alternation of crops.

Prior to 1960, crop rotation plans had been introduced into operations on an area of 123.26 million hectares. This constitutes 95.4 percent of the arable land. These plans were mastered on 104.67 million hectares, or 83.8 percent. This means that on one fifth of the arable land -- 26.2 million hectares -- crops are still being grown in a non-systematic manner. In particular, the mastering of crop rotation plans is being dragged out in Severo-Zapadnyy Rayon, in Ivanovskaya, Smolenskaya, Yaroslavl'skaya, Kirovskaya, Astrakhanskaya, Sverdlovskaya, Kemerovskaya, Tomskaya and Chitinskaya Oblasts, in Kraenoyarskiy and Khabarovskiy Krayes and in the Dagestanskaya, Udmurt'skaya and the Yakut'skaya ASSR's.

A basically new system of agricultural management has been developed in Stavropol'skiy Kray. It reflects the level of modern scientific development, the technical equipping of the farms and personnel training. The system is based upon the use of an overall approach for developing all branches, including the farming branches. It strictly takes into account the specific natural-economic conditions. Based specifically upon these conditions, the farmers develop systems for crop rotation plans and soil cultivation and they solve problems concerned with specialization and production control.

The workers in Stavropol'skiy Kray base their system of farming upon the principle of taking into account the natural factor, which limits growth in cropping power. Here we are speaking about moisture. One of the best measures for improving the water regime of soils is that of introducing grain-fallow-row crop rotation plans into operations, with an increase in the fallow used in these plans, on the average for the kray, to approximately 16 percent of the arable land. A great amount of attention has been given to the soil cultivation methods and measures for combating erosion.



What have been the results achieved from the implementation of this system?

The average annual production of grain in the kray during the years of the Tenth Five-Year Plan increased by 280,000 tons, or by 8 percent. The cropping power of the grain crops increased by 2.5 quintals per hectare.

The absence of an adequate amount of fallow land is restraining the introduction of flat-cutting soil cultivation in the arid steppe regions. And the mastering here of a soil protective system of farming is one of the central tasks of the grain economy. During the Eleventh Five-Year Plan, the plans call for non-mouldboard soil cultivation with stubble retention to be carried out on 25 million hectares.

The problem of protecting soils against erosion is just as vital in the forest-steppe regions of the RSFSR: here the principal disruptive factor is the runoff of atmospheric precipitation.

Unfortunately, the recommendations of the scientific institutes for combating the erosion of soils and raising their fertility do not always assist the farms in preventing a rapid decrease in the humus content in the soil or in eliminating the annual losses in nutrients. In a number of forest-steppe oblasts, this affects growth in cropping power and in the gross yields of grain. During the past few years, a decrease has even been noted in grain production (see Table).

Oblast	Cropping Power of Grain Crops (quintals per hectare)			Gross Grain Production (thousands of tons)		
	1966-1970	1971-1975	1976-1980	1966-1970	1971-1975	1976-1980
Kurskaya	18.9	19.0	17.5	2054	2128	2059
Lipetskaya	17.1	17.2	14.4	1541	1630	1444
Tambovskaya	16.7	16.5	15.7	2151	2295	2180
Penzenskaya	15.3	13.9	13.7	2346	2161	2088
Tul'skaya	14.7	15.5	14.0	1194	1362	1316
Ryazanskaya	12.3	14.3	12.1	1187	1610	1440
Orlovskaya	13.4	14.4	12.4	1271	1453	1304

A word about fertilizers. The kolkhozes and sovkhoses in many oblasts must devote greater attention to organic fertilizers. Improvements in the humus content in the soil and in soil fertility are greatly dependent upon the use of such fertilizers. The continued introduction into production operations of highly intensive crops and varieties, with their attendant strong withdrawal of nutrients, must be compensated for eventually. And a mere increase in the mineral fertilizer dosages will not solve the problem of maintaining a high level of soil fertility.

Special attention must be given to the organic fertilizers by those oblasts which concerned themselves with it very little in past years. Included among such oblasts are Irkutskaya, Kostromskaya and Permskaya.

In 1981, the kolkhozes and sovkhoses in the RSFSR must be supplied with 40 million tons of mineral fertilizer (in a standard computation). More than one half of this

amount will be used for grain crops. In subsequent years, the entire increase in mineral fertilizer deliveries will be used in behalf of grain production. Importance is attached to ensuring that this trend is strictly maintained on all of the farms.

Real opportunities exist this year for sowing the grain crops while simultaneously applying superphosphate to the drill rows on an area of no less than 30 million hectares. This is becoming an important measure for achieving high yields.

High returns are being obtained from fertilizers when they are applied in the form of top dressings to winter grain crops. Today a majority of the farms are applying top dressings to all crop areas that have survived the winter. Shortcomings noted on a number of farms in Kurskaya, Kirovskaya and Yaroslavl'skaya Oblasts have often resulted in this work being carried out on a very tardy basis in these areas. In particular, no delay should be tolerated in applying top dressings in the southern regions, where the upper soil layer dries out rapidly owing to an increase in the spring temperatures and windy conditions.

The quality of strong and durum wheat grain can be raised considerably by applying foliar top dressings to the crops. In Krasnodarskiy Kray, such top dressings are employed annually on an area of 800,000 hectares. They are also being used in Stavropol'skiy Kray and Rostovskaya Oblast. However, proper importance is not being attached to this method in Voronezhskaya, Belgorodskaya, Penzenskaya, Saratovskaya and certain other oblasts in the commodity production of grain.

The effectiveness of use of mineral fertilizers on acid soils, as is known, is determined to a considerable degree by lime applications to the soil. The data obtained from experiments is convincing: lime applications must surpass the rates of growth for fertilizer applications. Unfortunately, growth of another type has been noted in Amurskaya, Gor'kovskaya, Orlovskaya, Sverdlovskaya and Tul'skaya Oblasts and in the Mordovskaya ASSR -- growth in the amount of acid soil. And against a background of high acidity in the soil solution, fertilizers do not produce meaningful increases in yield. Some types of mineral fertilizers, in the absence of lime, themselves cause acidification.

During the new five-year plan, the republic's farmers must improve noticeably their system of seed production. This branch must be converted over to an industrial basis in the interest of accelerating the introduction into production operations of new and highly productive varieties and raising the sowing qualities of the sown seed.

The use of new and more productive varieties, as borne out by experience, is the cheapest and at the same time the most effective factor for growth in cropping power. According to computations by specialists, each hectare sown in new varieties produces an additional yield of up to 3 quintals of grain. The plans called for new varieties to be sown on up to 33.73 million hectares throughout the republic prior to 1980. They were actually planted on 35.5 million hectares. The experience of the agricultural organs, the farms of scientific institutes and strain testing stations in Rostovskaya Oblast warrants attention. New and promising varieties are being introduced into production operations on an accelerated basis here. Prior to their regionalization, an adequate amount of seed is being accumulated so as to

ensure that a good variety, within a period of 1-3 years, fully occupies the growing area allocated for it in the future. And it is by no means an accident that new varieties occupy two thirds of the grain crop plantings in the oblast.

Unfortunately, the work is not proceeding in this same manner in all areas. In Tomskaya Oblast, for example, new varieties occupied only 7 percent of the grain crop areas in 1980. The planned task for introducing these varieties here was fulfilled by only one half.

Another important problem in seed production is the quality of the seed being sown. It is recognized that for sowing purposes use must be made mainly of 1st class seed of the sowing standard. If there is a shortage of such seed -- 2d class seed is used. Only in an extreme case (as an exception) -- is use made of 3d class seed. Meanwhile, 1st class seed was sown on only slightly more than one fourth of the grain fields in behalf of the 1980 harvest and 2d class seed -- 44 percent. Each year, many farms in Vladimirskaia, Ivanovskaya, Irkutskaya, Kalininskaya, Kirovskaya, Lipetskaya, Novgorodskaya and Pskovskaya Oblasts are using seed of low sowing quality.

Many farms are causing great harm to the harvest and to the economics of grain production by virtue of the fact that they are not systematically producing their own batches of seed in the required volumes or creating insurance and carry-over seed funds.

In addition to increasing the production and sale of grain to the state, great importance is and will be attached to grain deliveries into the state resources in a definite species structure. An improvement in the forage grain balance requires that corrections be introduced, during the current five-year plan, into the work of producing rye grain, buckwheat, millet, corn, peas and lentils and also into those procurement plans which were not fulfilled. More attention must be given to the quality of the grain of strong and durum wheat and brewing barley.

Whereas, for example, the Bashkirskaya ASSR fulfilled its overall 5-year plan for the sale of pulse crops, the neighboring oblasts and autonomous republics ended up in great debt to the state. The kolkhozes and sovkhoses in the Tatarskaya ASSR fulfilled their 5-year plan for pulse crop procurements by 51 percent. Saratovskaya Oblast -- by only 8.5 percent. Moreover, the workers in Saratovskaya Oblast have curtailed almost completely their sales of lentils, despite the fact that in previous years they were the principal suppliers of this very valuable grain.

Roughly the same situation exists in the case of corn. Whereas the farms in the Kabardino-Balkarskaya ASSR coped with their 5-year plan for the sale of this grain to the state, the kolkhozes and sovkhoses in the Checheno-Ingushskaya ASSR fulfilled their plan by 57 percent and in the Dagestanskaya ASSR -- by 72 percent.

Many farms in the regions of commodity production of durum wheat grain performed below their available potential. Especially alarming is the fact that the sales plan for this crop is systematically not being fulfilled by farms in the principal regions in which it is produced -- Volgogradskaya, Kuybyshevskaya, Orenburgskaya, Saratovskaya and Chelyabinskaya Oblasts, in the Altayskiy Kray and in the Bashkirskaya ASSR.

The more vital problems in grain production are described above. If the tasks assigned to the agricultural workers by the party are to be carried out successfully, these problems must be solved today. They must be solved in an interesting manner and without disrupting operations.

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## TILLING AND CROPPING TECHNOLOGY

### HERBICIDE APPLICATION TO GRAIN, FEED CROPS PRESCRIBED

Minsk SEL'SKAYA ZHIZN' in Russian 7 May 81 p 2

[Article by T. Golovnya, chief of the division of plant protection of the Republic Bel'sel'khozkhimiya Association, A. Skur'yat, deputy director of the Belorussian Scientific Research Institute of Plant Protection, candidate of agricultural sciences, and K. Padenov, head of the division for the chemical method of plant protection, candidate of agricultural sciences: "Reliable Protection for Crops"]

[Text] On many kolkhozes and state farms in Brestskaya, Gomel'skaya and Grodnen'skaya oblasti sprouts have already appeared on plots of early dates of spring sowing. The second, very crucial, stage in the fight for the harvest--care of crops--is now beginning for farmers. During this period the principal attention of agronomists of farms, administrations of agriculture of rayon executive committees and Sel'khozkhimiya associations should be directed toward the creation of optimal conditions for the growth and development of cultivated plants.

The results of a survey show that on areas sown with spring grain crops on many farms there is a large number of weeds in the surface soil layer at the stage of white threads and on individual fields their number per square meter reaches 1,000 and more. There are three to four weeds per barley or oat plant.

Such an abundance of weedy vegetation is due to the fact that last year, which was rainy, the effectiveness of herbicides was low and in most cases weeds went to seed. This led to a big reserve of their seeds in soil. On some farms small volumes of stubble breaking and tardy fall plowing also contributed to this. Moreover, many weeds are introduced into soil with peat-manure composts.

The high weediness of crops leads to a reduced effectiveness of mineral fertilizers and to a deficiency of a significant part of the harvest. This cannot be tolerated. The agronomical service of farms, administrations of agriculture of rayon executive committees and Sel'khozkhimiya associations now must organize a careful survey of all the areas sown with winter and spring grain crops, flax, potatoes, sugar beets and root crops, constantly observe their condition and organize a prompt pest, disease and weed control.

In connection with the cold weather, herbicides of a postemergence effect are not sufficiently effective at a temperature below 14 degrees above zero. Therefore, in order to destroy weeds at the phase of white threads, it is necessary to carry

out preemergence harrowing of barley, oats, sugar beets and root and other crops, as well as of fields free of crops, on all farms. Such a simple and effective agricultural method makes it possible to destroy more than 70 percent of the weedy plants, after which there is no need to apply herbicides on many fields.

Special attention should be given to postemergence harrowing of areas sown with oats and barley at the phase of two to four leaves with light harrows across rows. It is very important to do this under the conditions of the current year.

When favorable weather for chemical weeding sets in, the areas sown with spring grain crops, if needed, should be treated with herbicides. The experience of past years indicates that many farms miss the optimum time for chemical weeding. It is necessary to take into consideration that the treatment of overgrown sown areas with herbicides inhibits cultivated plants and does not produce a high effect.

The chemical weeding of barley and oats must begin at the phase of development of three to four leaves. At the same time, barley is treated with 2,4-D amine salt in terms of 1.5 kg of the preparation per hectare and with 2M-4Kh, 1 kg. The consumption of the working fluid is 100 to 200 liters. Oat crops at the phase of three to four leaves are sensitive to amine salt. Therefore, they are sprayed only with the 2M-4Kh preparation in the dose of 1 kg per hectare. When barley and oats are fully tillered, 2 kg of amine salt per hectare should be applied.

If clover is sown under barley or oats, chemical weeding is done when clover reaches the phase of the first trefoil. During an earlier period plants are sensitive to herbicides. For this purpose 2 kg of 2M-4Kh or 2 to 3 kg of 2M-4KhM per hectare are used. It should be kept in mind that weeds of the cruciferae family (wild radish, shepherd's purse and so forth) are resistant to tropotox (2M-4KhM) and hemp nettle, creeping thistle and field sowthistle are more sensitive to it. When both weeds are on sown areas, it is advisable to apply mixtures of the indicated preparations in half doses.

An abundance of wild camomile, knapweed and field pennycress is expected on areas sown with winter wheat in the current year. In order to destroy them effectively at a temperature of 10 to 15 degrees, it is necessary to spray crops with the use of 2,4-D ethers. At the same time, the dose of 32-percent 2,4-D butyl ether is 1.1 to 1.2 kg per hectare and of 43-percent ether (butapon), 1.0 to 1.1 kg. The use of 2M-4KhP in the dose of 4 to 5 kg per hectare, or of mixtures of herbicides, for example, 2M-4KhP (1.5 kg) with 2M-4Kh (0.6 kg) and 2,4-D amine salt (1 kg) with 2M-4Kh (0.6 kg per hectare) gives good results.

To destroy weeds on areas sown with corn, 50-percent simazine and atrazine are applied widely. They are applied in doses of 2 to 3 kg per hectare to sandy loam soil, 4 kg, to loamy soil and 6 to 8 kg, to peat-bog soil. Taking into consideration that herbicides decompose in soil slowly (their toxic effect lasts up to 2 years), it is recommended that crops resistant to simazine and atrazine (potatoes and lupine) are sown the following year, or corn, for 2 or 3 years in succession.

During the period of corn vegetation (at the phase of 3 to 5 leaves) 2,4-D amine salt in the dose of 1.5 to 2 kg per hectare or 2,4-D butyl ether in the dose of 0.8 to 0.9 kg are used.

The optimum time for treating winter crops with chlorocholine chloride and camposan has arrived. Insufficient attention is paid to this important measure for an increase in the yield and gross output of grain in Cherkovskiy, Luninetskiy, Drogichinskiy, Udenakiy, Chervenakiy and other rayons. Lowered volumes of camposan application have already been planned in the current year. Isolated farms treat crops with it on an area of only 200 to 300 hectares, thereby planning in advance a harvest deficiency on the remaining untreated sown areas.

Camposan spraying should start at the beginning of the shooting of winter crops, when plants have the first internode. The period of crop treatment should not exceed 10 to 12 days. A total of 3 to 4 liters of a 50-percent preparation per hectare is the optimum dose. A total of 200 liters of the working fluid per hectare are used during ground spraying and 90 to 100 liters per hectare, during aerial spraying. The increase in the harvest from the application of camposan occurs as a result of the physiological processes of grain swelling, formation of a large number of productive stems and reduction of losses during harvesting. On the average, it totals from 3.7 to 4.2 quintals per hectare.

On sugar and fodder beet fields, to destroy dicotyledonous weeds, phenazon (5 to 6 kg of the preparation per hectare) is applied before or simultaneously with sowing (band placement) and 3 kg, by the band method. It is best to apply the herbicide before sowing the crop with its simultaneous placement by harrowing or cultivation. Delay in this operation leads to a reduction in effectiveness.

For a simultaneous control of dicotyledonous and grassy weeds phenazon in the dose of 5 to 6 kg per hectare is mixed with sodium trichloroacetate in the dose of 7 to 8 kg.

Of the herbicides recommended for application to the vegetating plants of sugar beets betanal (6 to 7 kg of the preparation per hectare) is used. Its mechanism of action lies in the fact that it penetrates leaves of weeds and destroys only young sprouts. Therefore, the activity of the preparation does not depend on the type of soil. When multiseed sugar beets are cultivated, the phase of the first true leaf is the best time for treatment, and single-seed sugar beets, the phase of two or three true leaves. The early time for the application of betanal during the cultivation of multiseed sugar beets is due to the fact that they are thinned out at the phase of two true leaves. Therefore, by the time crops are thinned out, weeds should be destroyed. The effectiveness of betanal depends on the air temperature. The effect of the preparation is lower below 15 degrees above zero.

The carrion beetle--a widespread polyphagous pest--does great damage to sugar and fodder beet sprouts.

Beetles and their larvae do damage. Therefore, even a small number of carrion beetles (two or three specimens per square meter) create a serious threat to crops. The flea beetle also destroys sprouts during warm sunny weather.

To control carrion and flea beetles, it is first of all necessary to widely use agricultural engineering methods (harrowing, blind cultivation and chemical eradication of weeds), which promote the growth and development of plants and have



a negative effect on harmful organisms. Usually, carrion and flea beetles invade and damage sugar beets during the germination period. Therefore, they are controlled at the same time. Spraying one of the insecticides enumerated below is very effective against them: a 20-percent metaphos emulsion (2 to 2.5 kg of the preparation per hectare), methylnitrophos (1.5 to 2 kg), trichlorometaphos (1.5 kg) and rogor (1.5 kg).

It should be noted that during the treatment of sugar beet crops the carrion beetle escapes to neighboring crops. Therefore, when the dates of application of pesticides on neighboring plots coincide, outer sown areas no less than 50 to 60 meters wide should be treated.

The beetle leaf miner is controlled at the phase of three to four pairs of true leaves with the same insecticides, but in somewhat smaller doses. At the same time, 1 to 2 kg of metaphos per hectare, 0.6 to 1 kg of methylnitrophos, 0.7 to 0.9 kg of rogor and 1.5 to 2 kg of chlorophos per hectare are used. Economically, the operation is justified if, on the average, there are more than 10 eggs per plant during this phase.

When the dates of appearance of pests and of weed control on areas sown with sugar beets at the phase of heading and of the first true leaf or two or three true leaves coincide, the application of betanal can be combined with insecticides. For this one of the preparations—chlorophos, fozalon, rogor, bazudin and others—in the doses indicated above should be added to the herbicide solution.

The 2M-4Kh herbicide (metoxon, dikotex) in the dose of 1.0 to 1.3 kg per hectare is used against weeds on areas sown with flax. The maximum dose is taken when perennial weeds predominate. Spraying is done at the "herringbone" phase, when stems are from 5 to 8 cm high. Only rod equipment with a consumption of 250 to 300 liters of the working solution per hectare is used for treatment. The use of blower sprayers is forbidden categorically. The effectiveness of chemical weeding of flax increases from the use of 2M-4Kh together with a foliar topdressing of plants with boron and urea, which increase the herbicide activity. For this 0.6 kg of boric acid, or 5 to 10 kg of technical urea are added to the solution.

Of the pests on areas sown with flax fleas are the most dangerous. To destroy them, outer treatments on sown areas are carried out and, when there are more than 30 beetles per square meter in warm dry weather and more than 40 beetles in wet weather, it is necessary to carry out continuous treatments, using one of the following toxic chemicals for this: a 20-percent concentrate of metaphos emulsion in the dose of 0.8 kg and 80-percent chlorophos, 1.5 kg per hectare.

The fruit fly is a dangerous pest of grain crops and corn. The emergence of its first generation coincides with the beginning of flowering of the dandelion, and the beginning of mass flight, with the appearance of flowers in early apple varieties. The flies prefer plants in the phase of two or three leaves for oviposition.

When the main stems of barley and oats are damaged, grain losses on each plant reach 50 percent and, when lateral stems are damaged, 20 to 40 percent. It is recommended that the fruit fly be chemically controlled during the period of its mass flight, when there are 25 to 30 individuals per count on barley and 30 to 40,



on oats. This period usually coincides with the phase of two to three leaves of spring grain crops and one leaf of corn. One of the following preparations is used against the pest: 80-percent chlorophos (1.5 kg per hectare), a 40-percent concentrate of phosphamida or rogor (1 kg) and a 20-percent concentrate of a metaphos emulsion (1 kg).

On barley and oats at the phase of three to four leaves it is advisable to combine this method with a chemical eradication of weeds, adding the above-indicated insecticides to the recommended doses of herbicides.

Cruciferous-feeding flea beetles and the cabbage maggot present a danger to vegetable crops during an early spring period. When these beetles appear on radishes, cabbage and turnip in nurseries and in the field, it is recommended that plants be sprayed with a 0.2 percent chlorophos solution of 80-percent wetting powder (0.8 kg of the preparation per hectare). The consumption of the working fluid is 400 liters per hectare.

To destroy the cabbage and the turnip maggot, it is necessary to spray cabbage with a 1-percent chlorophos or phosphamida solution. On early cabbage plantations this method is used at the beginning of oviposition by the maggot, which coincides with mass cerry blossoming. Spraying is effective only when more than 10 percent of the plants are invaded and when there are more than 10 eggs per plant. On medium-late cabbage the treatment is carried out immediately after the transplantation of seedlings.

In order to attain high effectiveness from the application of pesticides, it is necessary to treat all crops only with rod equipment.

Prompt and quality care of crops and their protection against pests, diseases and weeds are some of the important potentials for obtaining high harvests of all agricultural crops.

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CSO: 1824/307

## TILLING AND CHOPPING TECHNOLOGY

### POOR PREPARATION, OPERATION OF FEED PROCUREMENT EQUIPMENT STRESSED

Moscow SEL'SKAYA ZHIZN' in Russian 6 Jun 81 p 1

[Article: "Equipment for Haying Operations"]

[Text] A busy and important period is at hand for the country's farms -- mass haying operations. The borders of the green harvest are advancing with each passing day. The quantity and quality of the forage procured for winter and, it follows, the full value of the rations for the indoor maintenance period, the productivity of the livestock and poultry and the rates of growth for the production and sale of meat, milk and other farm products are dependent to a large degree upon the efficient and organized carrying out of an entire complex of feed harvesting operations. This is why such importance is being attached this year, at each kolkhoz, sovkhos and inter-farm enterprise, to concentrating efforts aimed at strengthening the feed base considerably, creating a reliable forage supply and fulfilling and over-fulfilling the plans for procuring hay, haylage, silage, grass meal, granules and briquettes, as set forth in the decree of the CC CPSU and the USSR Council of Ministers entitled "Additional Measures for Ensuring the Harvesting of the Crops, the Procurements of the Agricultural Products and Feed During 1981 and the Successful Wintering of the Livestock During the 1981-1982 Period."

It bears mentioning that the logistical base for feed production has been strengthened noticeably in the rural areas. A greater number of fine storehouses for silage, hay, food roots and other types of forage are being built on the farms. Industry is increasing its deliveries of modern machines, required for the mechanization of procurements and for converting the branch over to an industrial basis. All of this is making it possible to accelerate the harvesting of the forage crops and to carry out this work during the best periods and more rapidly than earlier and this results in the laying away of more high quality feed. A requirement exists for ensuring that the machine pool used for the mowing and harvesting of grasses is employed in a skilful and highly productive manner and with maximum output.

This can only be achieved if everything is carefully thought out and considered in advance, if the working plans for forage procurements are carried out in a strict manner and on a timely basis and if all of the feed procurement equipment is prepared in a high quality manner. Unfortunately, as inspections have revealed, by no means have full preparations been made for the hay harvest in all areas. In the Checheno-Ingushskaya ASSR, the green harvest is already in full swing and a considerable number of the tractor mowers, mincers, and silage harvesting combines have not been

repaired. As a result, the mowing of the grasses is being delayed, crop losses are increasing and the quality of the feed is declining. Not all of the feed harvesting machines and mechanisms in the Tuvinskaya ASSR have as yet been moved up to the readiness line. This also holds true for Kirovskaya, Ryzanskaya, Volgogradskaya, Tyumenskaya and some other oblasts in the Russian Federation. Alarming signals are being received from Kazakhstan. At some kolkhozes and sovkhozes throughout the republic, the feed procurement equipment is being restored extremely slowly. For example, approximately 40 percent of the hay mowers in Valikhanovskiy and Enbekshil'derskiy Rayons in Kokchetavskaya Oblast have still not been placed in proper working order.

What is the problem? A vicious practice is being followed -- the mass repairing of equipment required for procuring feed is being carried out not during the autumn-winter period, but rather it is being postponed to later periods. But the spring field work, as a rule, places great demands upon the availability of manpower and resources. In early June, the restoration of hay harvesting machines comes practically to a halt. If decisive measures are not undertaken, then many units in a number of republics and oblasts will be unable to participate either in the hay harvest work or in the laying in of haylage and silage. A direct obligation of the party, soviet and economic organs, kolkhos and sovkhos leaders and specialists the associations of Oshkonsel'khoztekhnika and all machine operator collectives consists of completing the preparation of the machinepool for the green harvest as rapidly as possible. Special attention should be given to the equipment employed for mechanizing the hay procurement work, since the hay supplies must be increased noticeably this year.

Equally important is the need for ensuring that not one machine lies idle during the peak of the haying season. This requires the carrying out of a number of actions: in addition to the entire machine pool, all fixed and mobile items of technical servicing equipment must be prepared as rapidly as possible; concern must be displayed for creating exchange funds for spare units and parts; a check must be carried out on the reliability of dispatcher communications.

The leading farms are setting a fine example in their organization of feed procurement operations. They are profiting greatly from use of the Ipatovo method of equipment operation. All night long the roar of motors can be heard out on the feed lands of the Labinsk Interfarm Complex for the Fattening of Large Horned Cattle in Krasnodarskiy Kray. Two specially formed harvesting-transport teams are competing against one another as they rapidly cut down the sown grasses and lay in silage. They have 15 highly productive mowers and 30 trucks at their disposal. The feed procurement operations are being directed by an operational staff which monitors the condition of the grass stand and the quality of the hay mowing and the silage making operations. It also oversees the provision of consumer services for those participating in the green harvest. In response to the very first signal, the repair units move out onto the meadows. A press group prepares a "Calendar of Labor Glory" on a regular basis. It contains discussions on the heroes in the haying operations and on the achievements of competing collectives. The feed conveyer line operates without interruption. The mowing personnel on farms in Apsheronskiy Rayon in the Azerbaijan SSR are also carrying out their work in an efficient manner. During a very short period of time, they harvested from their fields and laid in for silage almost 20,000 tons of alfalfa and grass mixtures and

they thus surpassed their planned task by more than 2,000 tons. The accumulation of feed continues.

Many such examples could be cited. However, we are still encountering instances wherein the modern feed harvesting equipment, owing to shortages in skilled workers, is being operated in one shift. City-dwellers and the collectives of industrial enterprises can provide assistance here. Valuable experience has been accumulated in Belorussia, Rostovskaya, Leningrad and Moscow Oblasts in employing such individuals for feed procurement purposes. Representatives of the working class who have undergone special training and who know the green harvest technology to perfection are working shoulder to shoulder with the rural machine operators out on the meadows and feed fields. Such supportive contacts must be constantly strengthened, improved and increased in number.

In order for the green harvest to be carried out in all areas on a high organizational level, all problems and shortcomings must be corrected in a decisive manner and the program for machine operators to achieve a higher level of labor productivity and maximum utilization of the technical potential embodied in their feed harvesting equipment must be expanded on a more extensive scale. "To work efficiently and in a high quality manner" -- such is the slogan of all those participating in the hay harvest operations.

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CSO: 1824/310



## TILLING AND CROPPING TECHNOLOGY

### POOR PERFORMANCE OF FERTILIZER PLANTS SCORED

Moscow SOTSIALICHESKAYA INDUSTRIYA in Russian 10 Jun 81 p 1

[Article by Ye. Leont'yeva: "Path Towards High Yields"]

[Text] A farmer cannot manage without a harvest, while the harvest draws heavily upon the land. Approximately 150 kilograms of nutrients are withdrawn annually from each hectare of wheat and rye, while corn, beets and potatoes absorb 3-4 times more nutrients. But the arable land cannot be treated harshly: everything that is withdrawn from the land by man in the form of a crop must be returned to it.

Sharing the concern of the grain growers, workers attached to the Ministry for the Production of Mineral Fertilizers successfully fulfilled their plan for 5 months, having furnished more than 100,000 additional tons of mineral fertilizer. Almost one half of this above-plan output was produced by three of the best associations -- Beloruskaliy, Khimprom Association at Sumy and the Azot Association at Grodno. Such enterprises as the Voskresensk Minudobreniya Association, the Severodonetsk and Nevinnowysk Azota Associations and the Gomel' Chemical Plant imeni 50-Letiya SSSR are carrying out their work in a stable manner.

These successes are gratifying in view of the fact that for a long period of time the branch was unable to cope with its tasks. However, even at the present time, with the plan being fulfilled, the agricultural workers still have many complaints to register against the chemists. The program for raising the nutrient content in fertilizers remains unfulfilled. In addition, the kolkhozes and sovkhoses are still being supplied with 19 million tons of non-granulated pulverized mineral fertilizer that require considerable additional expenditures for offloading and also for preparing for applying to the soil. For the same reason, the fertilizer losses caused by caking are still quite high. All of these factors taken together do not allow us to remain complacent regarding results already achieved.

During the current five-year period, the production of mineral fertilizer must be increased by one third and its quality improved considerably. The branch has great potential at its disposal for the production of fertilizer, a potential which allows it to cope with its established task. Unfortunately, however, this potential is not "operating" at maximum capability at the present time. Only 80 percent of the productive capability is being utilized. In 1975, the indicators for such utilization were better than they are at the present time. Moreover, this decrease took place mainly at the expense of enterprises engaged in the production of phosphate fertilizers, for which there is a great need.

If we are discussing individual enterprises, then such installations as the Bereznikovskiy Nitrogen Fertilizer Plant, the Dorogobuzh Nitrogen Fertilizer Plant, the Novgorod Azot and the Rustava Chemical Plant are utilizing their technical potential in a very unsatisfactory manner. The worst situations prevail at Soyuzazot, Soyuzosnovkhim and at Soyuzfosfor (chiefs -- V. Panchenkov, A. Aleshin, T. Al'zhanov). Within these associations there are departments which were placed in operation at the beginning of the last five-year plan and yet their equipment has still not been mastered. A good example of this is an ammonia unit at Tol'yatti and a sulphuric acid department in Balakovo.

The emergency shutting down of units, which prolongs repair operations to an excessive degree, and great overexpenditures of raw materials and power also underscore the poor utilization of capabilities, including large-tonnage imported items of equipment. In March of this year, a unit in the Nitric Acid Department of the Rustava Chemical Plant broke down owing to poor use of the equipment. The result -- an extended period of equipment idle time and a disruption in the delivery plan for nitrogen fertilizers. An ammonia unit was idle for more than a month at the Gorlovka Stirol Association as a result of crude technological violations. An accident occurred recently at the Cherepovets Ammophos Association -- technological discipline had also been neglected here.

Despite repeated attempts by the branch leadership to improve its status, the Balakovo Chemical Plant has been classified as a backward plant for a long period of time. Built on the basis of new equipment, during the Tenth Five-Year Plan it fell short in its production by more than 90 million rubles worth of products. Here the departments are constantly undergoing repair operations and this makes very little sense.

When the technological process is carried out in an irregular manner and disruptions in the operations of enterprises are not viewed as extraordinary incidents, then overexpenditures of raw materials and other materials become regular happenings. Last year, the Rovno Azot Association had an overexpenditure in its use of compound fertilizer -- nitro-ammophoska -- 35,000 tons of sulphuric acid and 30,000 tons of apatite concentrate. The Maardu, Uvarovo and Chardzhou chemical plants expended a tremendous amount of sulphuric acid in vain. And enterprises which produce ammophos are operating according to norms which exceed the planned ones by 7-14 percent.

In short, the mineral fertilizer industry is not meeting its daily requirements. And in recent years serious problems have been arising on a more frequent basis in connection with the raw materials base. The easily accessible rich ores, which are the primary goals of the mining enterprises, are disappearing rapidly. Waste products must be employed or poorer layers developed, layers which require great expenditures for processing. The fertility salts are becoming more and more expensive.

An especially alarming situation is developing in the production of phosphate mineral fertilizers owing to a shortage of sulphur and sulphuric pyrite. High expenditures of energy for the underground smelting of sulphur, large heat losses and at the same time a low coefficient for extracting sulphur from the depths -- such is the picture at mines in L'vovskaya Oblast and in the Turkmen SSR. Poor use is also being made here of the raw material capabilities.

The economic indicators are also being adversely affected by mistakes and miscalculations which occur quite frequently in the planning and construction of new projects. In addition, the limit on capital investments for industrial construction is presently being utilized to only 75 percent. If no improvement is realized in the use of these capital investments, then the fulfillment of the program for delivering mineral fertilizers to agriculture may be threatened.

Taken together, all of these factors exert a noticeable effect on the work of the branch. There is a good basis for the constant increases taking place in the expenditures for the production of goods: during the Tenth Five-Year Plan, production costs increased by 10 percent! Including at the Soyuzfosfor Association -- by 27.3 percent and at the Soyussere Association -- by 31.2 percent.

At the present time, with domestic farming entering a qualitatively new stage in the intensive use of chemical processes and with a conversion being carried out to the use of higher norms for applying mineral fertilizers, it is obvious that a requirement exists for a well thought out reorganization of the administration for chemical enterprises. Certainly, it will not be a simple task to overcome the shortcomings which seriously held up their operations during the past five-year plan. In order to raise the production of fertilizer to the level of modern requirements, the new specialized ministry must carry out a tremendous amount of work. The successful beginning this year indicates that this work has already commenced.

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